Goal motivation and the self-regulation of goals in depression

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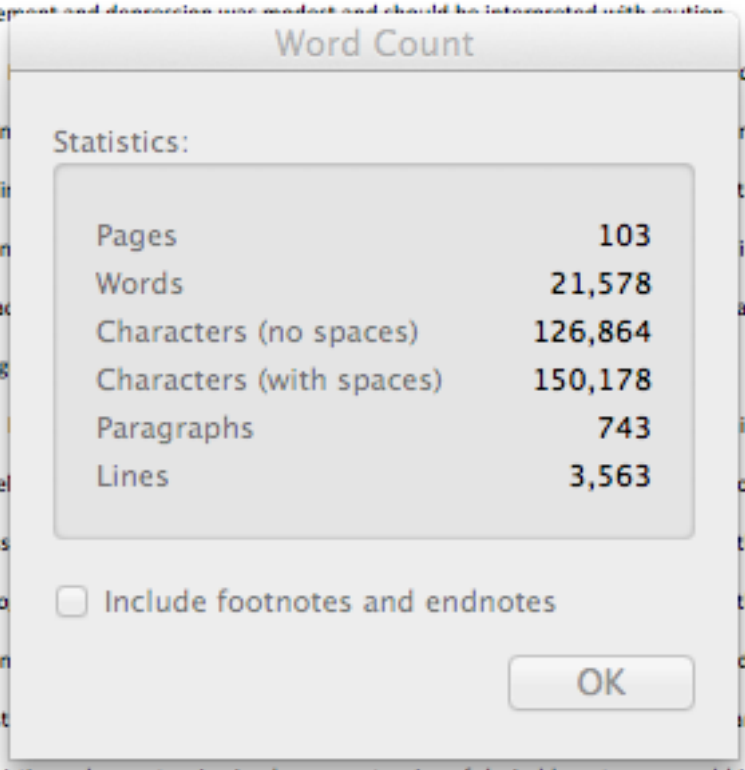
negative metacognitive ruminative beliefs on the relationship between goal re-

engagement and depression was modest and should be interpreted with caution



pessimistic goal expectancies i.e. low expectancies of desirable outcomes and high expectancies of undesirable outcomes. In addition, the findings revealed that depression was both characterised by heightened goal disengagement and reduced

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Introduction chapter: Thesis overview

The overarching aim of this thesis is to study features of goal motivation and the self-regulation of personal goals which have been implicated in the development and maintenance of depression (Trew, 2011; Van de Elzen & Macleod, 2006; Wrosch, Scheier, Carver and Schulz, 2003). This thesis consists of two main chapters: a narrative literature review and an empirical paper. Each chapter, together with how they are linked is outlined in this introductory chapter.

Chapter 1

The context for the review is set by providing a brief background on the prevalence of depression and highlighting the present lack of research which examines goal motivation within depression. A brief overview of goal motivation and goal self-regulatory research and theory is provided to contextualise the review and to establish the need to extend our understandings of these areas within depression.

Following this the narrative review is structured around its two main aims. Firstly, the review develops an understanding of depression from a dysregulation of goal adjustment perspective. This chapter of the review focuses on research which has examined two specific goal adjustment processes (i.e. goal disengagement and goal re-engagement) conceptualised by Wrosch, Scheier, Carver and Schulz (2003). This area of research has largely focused on an individuals' ability to reduce their effort and commitment towards and unattainable goal and re-engage with alternate goals (Wrosch, et al., 2003; Wrosch, 2011). The review highlights the main findings which have suggested a relationship between maladaptive goal adjustment responses to unattainable goals and a vulnerability to depression (Wrosch, 2011). The review identifies limitations of previous research and identifies the need to

undertake further research in clinical populations. This need is addressed as one the main aims of the empirical paper.

The second aim of the review focuses on research which has examined the influence of rumination in mediating goal adjustment processes and depressive affect. The review discusses the findings from studies which have posited a pathway to depression linked to rumination, whereby this response impairs goal disengagement and prevents the re-engagement with more realistic and rewarding goals. The review identifies the limitations of these studies and suggests important areas for future research. Specifically, the need to address what may predispose individuals to adopt a maladaptive ruminative response to problematic goal attainment. The chapter concludes by presenting potential clinical implications from the studies in the treatment of depression and suggests directions for future research.

Overall, the narrative review sets the context for the empirical paper, which follows in the subsequent chapter. Specifically, the need to undertake research within a clinical population examining whether distinct goal adjustment processes are a feature of depressed individuals in responding to unattainable goals. Also, the need to investigate additional processes which predispose individuals to respond ruminatively to problematic goal attainment and may potentially mediate the relationship between goal adjustment and depression. These issues are revisited and addressed within the empirical paper.

Chapter 2

This chapter presents the empirical paper, which is intended for publication and is written in the style of the journal identified for submission (Motivation and

Emotion). The empirical paper aims to further study goal motivation and the self-regulation of unattainable goals within depression. The paper presents the key theoretical models and research in the area of goal motivation. There is a discussion of goal motivation research which has linked depression to distinct types of goals, characterised by different types of goals (approach goals vs avoidance goals). Also, recent research is presented which has examined whether depression biases cognitive aspects of goal motivation, specifically goal expectancies (Dickson, Moberly & Kinderman, 2011). To date, there has been a paucity of research examining goal orientation and goal expectancies within depression, despite the proliferation of goal based therapies. An additional impetus outlined for further research within a clinical population is the mixed findings reported by previous studies regarding goal motivation within depression. Therefore, the present study examined the goal orientation (approach vs avoidance) and goal expectancies of depressed individuals relative to non-depressed individuals.

Following this, the key theoretical models and research which have been linked to the self-regulation of unattainable goals is presented. The empirical paper attempted to build upon the understandings from the narrative review. Also, the study examined whether depressed and non-depressed individuals differ in their reporting of their goal adjustment tendencies. This was intended to identify if distinct goal adjustment processes are a feature of depressed individuals. The study attempts to identify processes which may predispose an individual to engage in maladaptive rumination in response to problematic goal attainment, which may mediate the relationship between goal adjustment and depression. Therefore, the present study aimed to establish whether metacognitive ruminative beliefs mediate

the relationship between goal adjustment and depression. Previous research has suggested that these beliefs influence an individuals' engagement in rumination in response to a stressor and have been implicated in depression (Moulds, Yap, Kerr, Williams & Kandris, 2010).

A discussion of the present study findings is also presented which offers interpretations of the study results as well as their relevance to previous research, which has been undertaken. Methodological considerations of the study are discussed, alongside the clinical implications of the study findings and future directions for research.

Summary

In summary, this thesis aims to develop a greater understanding of depression from a goal motivation and goal regulation perspective. First, a narrative review presents two primary aims, (i) to provide an understanding of the dysregulation of goal adjustment processes (goal disengagement and goal re-engagement) in responding to an unattainable goal linked to depression (ii) the influence of rumination, in response to unattainable goals, as a vulnerability contributing to the maintenance and exacerbation of depressive mood, through disruption of goal adjustment processes. Second, an empirical paper presents three main aims (i) to examine the goal orientation (approach vs avoidance) of depressed and non-depressed individuals (ii) to examine the goal expectancies of depressed individuals compared to non-depressed individuals (iii) the goal adjustment tendencies of depressed compared to non-depressed individuals in responding to an unattainable goal and, (iv) the mediation of metacognitive ruminative beliefs upon goal adjustment and depression.

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Chapter 1: Narrative literature Review

The relationship between goal motivation and the self-regulation of unattainable goals in relation to depression

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Overview

Depression remains a serious mental health concern (The National Institute of Clinical Excellence, 2012). Presently, depression accounts for seven per cent of the health expenditure within the National Health Service (Department of Health, 2012). Improved recognition, treatment, and prevention of depression are critical public health priorities (DoH, 2012). Despite an increased understanding and ongoing developments in the treatment of depression there remains a need to identify new and more effective interventions (Hervas & Vazquez, 2013). To date, the advances and development of psychological therapies for depression have focused largely on cognitive and behavioural features. In contrast, little research has examined the role of motivational processes within depression (Tull, Gratz, Latzman, Kimbrel, & Lejuz, 2011).

Emerging goal based motivational research has implicated distinct goal motivational processes in depression rather than by a goal motivation deficit per (Dickson, Moberly & Kinderman, 2011). In addition, there is increasing interest in models of goal self-regulation (O'Connor, Fraser, Whyte, Machale & Masterton, 2009). More recently there has been a particular interest in an individuals' capacity to relinquish unattainable goals in relation to wellbeing (Wrosch, Amir, & Miller, 2011). This body of research suggests that a dysregulation of goal processes in response to unattainable goals may constitute a vulnerability to depression (Dickson & Mcleod, 2004; Trew, 2011; Van den Elzen & Macleod, 2006; Wrosch & Miller, 2009; Wrosch, Scheier, Carver, & Schulz, 2003a; Wrosch, Scheier, Miller, Schulz & Carver, 2003b).

The purpose of this narrative literature review is to study goal motivation in depression. First, a brief summary will be given to contextualise the narrative review in terms of the prevalence of depression and in relation to the relevance of motivational goal theory and goal regulation theory. The motivational theory underpinning goal behaviour will be outlined and its reported relevance to depression. Also, the summary will indicate the need to develop a greater understanding of goal self-regulatory processes in connection to the onset and maintenance of depression. Following this summary the review will focus on its two primary aims; first, to study the dysregulation of goal adjustment processes (goal disengagement and re-engagement) in responding to unattainable goals (Miller & Wrosch, 2007; Wrosch et al., 2003a; Wrosch et al., 2003b) and associations with depression. Current theoretical models will be critically discussed in relation to the regulation of unattainable goals; identifying the need to develop these theories as explanations of the link between goal adjustment and depression.

Following this the second aim of the review is to discuss rumination proneness, in response to unattainable goals, as a vulnerability contributing to the maintenance and exacerbation of depressive mood, through disruption of goal adjustment processes (Van Randenborgh, Huffmeier, Lemoult, Joorman, & Roberts, 2010). There have been few studies that have directly explored this understanding of depression. Nonetheless, current research has suggested that rumination may inhibit effective goal disengagement from unattainable goals, preventing the re-engagement with realistic and potentially rewarding goals; thus elevating levels of depressive mood and constituting a heightened risk to depression (Van Randenborgh, et al., 2010). Theoretical models of the self-regulation of goals will be

critically discussed to propose that a maladaptive ruminative response may account for a dysregulation of the processes within these theories. To date, these theories have not been well studied in their application to clinical populations

Finally, the findings of the reviewed studies will be discussed in terms of their potential clinical implications in the treatment of depression. Recommendations are suggested for future research in to the relationship between goal self-regulation and depression.

Search methods and results

Three electronic databases (Web of Science, Scopus and PsycINFO) were searched for relevant literature published between the commencement of the journals up to January 2014. Two structured searches were conducted relevant to the narrative review's two aims. The initial search focused on goal disengagement, re-engagement processes and depressive symptoms. The search strategy combined free text words and synonyms of search terms to capture relevant research. The search terms included goal disengag*, goal engag*, goal adjustment, goal adaption, self-regulation, unattainable goal, depression, low mood, dysphoria, wellbeing. The second search strategy focused on the influence of rumination on goal disengagement and goal re-engagement processes. The search terms included; ruminat*, self-focused attention, repetitive negative thinking, self-referent* thinking, negative thinking, cognitive coping style, cognitive response, goal disengag*, goal engag*, goal adjustment, goal adaption, self-regulation, unattainable goal. The search identified twenty four full text papers which were chosen and from which relevant information was extracted. The second search identified twelve papers from which data was also extracted.

In addition, inclusion and exclusion criteria were applied to select the papers from the two structured searches. The inclusion criteria included: papers with samples of participants aged 16 and above, english language papers, papers that focused on the area of subjective wellbeing or mental health within the abstract as well as papers specifically relevant to goal disengagement and re-engagement processes. Exclusion criteria, included papers with samples aged below 16 years of age, non-english language papers as well as papers that focused on education or physical health. In addition to the selected papers from the structured search, additional papers and textbooks discussed within these papers, with relevance to the review were also referred to and discussed.

Depression

Depression is characterised by a loss of interest or pleasure in most activities and a tendency to engage in passive unrewarding behaviour (Thompson, Mata, Jaeggi, Buschkuel, Jonides & Gotlib, 2010). The estimated prevalence for major depression among 16-65 year olds in the UK is at 21/1000 (NICE, 2012). Recently released figures from the National Wellbeing programme (Office of National Statistics, 2013) reported that nearly one fifth of adults were currently experiencing depression or anxiety in the United Kingdom. Depression often has a remitting and relapsing course, and symptoms may persist between episodes. The evidence suggests that at least 50% of people following their first episode of major depression will go on to have at least one more episode (NICE, 2012). Relapse rates for depression suggest that after the second and third episode, the risk of further relapse rises to 70% and 90% respectively (NICE, 2012). The economic cost of mental health problems in England has been recently estimated at £105 billion (DoH, 2012).

Treatment costs are expected to double in the next twenty years (DoH, 2012). Therefore, it is imperative not only to increase access to psychological therapies but also to provide effective therapies. In order to improve treatment outcomes, this requires identifying the variety of intrapersonal factors that may influence the course and severity of depression and engagement in therapy (DoH, 2012; Sherratt & Macleod, 2013).

In this regard, despite the fact that the most commonly used treatments for depression encourage the setting of explicit therapy goals, comparatively little research on depression has been undertaken from a goal motivation perspective. Goal motivation processes have a significant impact on the course of depression and response to treatment (Sherratt & Macleod, 2013). Research has identified that distinct goal motivation processes and the regulation of goals are important features of depression. Such findings emphasise the need to improve our understanding of depression from a goal motivation perspective. This has important implications for clinical practice to enable the development of more effective and tailored goal-based therapies (Roberts, Watkins & Wills, 2013; Vergara & Roberts, 2011). A further impetus to better understand the link between goal motivation and depression has been the proliferation of National Health Service 'Improving Access to Psychological Therapy' programmes, predominantly delivering Cognitive Behavioural Therapies; a therapeutic approach within which goal setting is considered a fundamental feature.

Motivational goal theory

A number of theoretical models have been developed to explain the motivational processes linked to depression (see Trew, 2011 for a review). Theories converge on the idea that goal pursuit is fundamentally driven and managed by two

distinct self-regulatory subsystems, an approach and an avoidance system (Elliot & Thrash, 2002). This two system view of goal motivation has been conceptualised in a number of earlier models of motivation, for example, Gray's (1982) prominent Reinforcement Sensitivity Theory (RST). Gray's (1982) theory posits two subsystems, a Behavioural Inhibition System (BIS) and a Behavioural Approach System (BAS). The BIS is related to sensitivity to punishment as well as avoidance motivation, while the BAS is related to sensitivity to reward as well as approach motivation. Fowles (1994) theorised that depression is characterised by low approach motivation (low reward sensitivity) and high avoidance motivation (high threat sensitivity).

Goals are considered a cognitive representation of underlying motivation (Dickson et al., 2011). Personal goals have been defined as internal representations of desired states and undesired end states (Strauman & Wilson, 2010). Consistent with early motivational theory more recent goal self-regulation theories posit that all goal pursuit is fundamentally an approach-driven activity or and an avoidance-driven activity. Further, Elliot and Thrash (2002) contend that all goals are structured as either approach goals or avoidance goals. Approach goals are orientated to positive outcomes and involve goal directed pursuits to move toward or to maintain a desired end state. Conversely, avoidance goals are focused on negative outcomes and goal pursuits are orientated to inhibiting or preventing aversive end states (Elliot, 2002 for a review). There have been mixed findings of the link between approach and avoidance goal motivation and depression (see, Trew, 2011 and Bijttebier, Beck, Claes, & Vandereycken, 2009 for a review). Generally, it has been suggested that depression is characterised by impaired approach goal pursuit (Bijttebier et al., 2009). In contrast, some studies suggest that depression is

characterised by an increased focus on avoidance goal pursuit, however these finding are far more mixed (Trew, 2011). This has led Sherratt & Macleod (2013) to argue that there remains a need to study the link between goal orientation and depression using clinical samples, in order to clarify the earlier studies findings. They assert that the few studies that have directly studied the idiographic goals and motivations of depressed people have presented inconsistent patterns of goal motivation.

Self-regulation of goals

Furthermore, there has been limited research examining the association between depression and the regulation of goals. Karoly (2006) suggests that the onset and maintenance of 'human adjustment problems' within the Diagnostic Statistical Manual of Mental Disorders (DSM) can be linked to deficits, dysfunctions or disruptions in the self-regulation of goals. In addition, an individual's capacity to adaptively respond to unattainable goals has been linked to their risk of experiencing depression (Carver & Scheier, 1990; Miller & Wrosch, 2007; Wrosch et al., 2003b; Wrosch & Miller, 2009). Studies have suggested that affect and goal response interact in the regulation of unattainable goals (Carver, 2000; Carver & Scheier, 2000). It has been recommended that research should focus on maladaptive emotional response and goal dysregulation to facilitate a better understanding of these relationships within depression (Miller & Wrosch, 2007; Thompson, Mata, Jaeggi, Buschkuel, Jonides & Gotlib, 2010; Van de Elzen & Macleod, 2006; Van Randenborgh, Hueffmeier, LeMoult & Joormann, 2010).

The self-regulation of goals is characterised by three broad interactive processes: establishing standards or goals, engaging in goal directed behaviour, and

monitoring goal progress (Carver, 2006). Carver and Scheier's (1990) Control Theory claims that affect modifies behavioural output. For example, increase or withdrawal of effort when negative affect is experienced and a decrease or re-allocation of effort when positive affect is experienced (Louro, Pieters, & Zeelenberg, 2007). Researchers have hypothesised that a dysregulation of the behavioural processes described within control theory may explain the onset and maintenance of depression. Such as, inflexible goal pursuit, reduced effort but maintenance of commitment towards an unattainable goal, difficulties disengaging from problematic goal attainment and lack of re-engagement in alternate rewarding goals (Watkins, 2008; Watkins, 2011; Wrosch & Miller, 2009).

There has been a paucity of research within this area despite the potential theoretical and clinical importance of studying the relationship between depression and the regulation of goals (Brandstatter, & Schueler, 2012; Miller & Wrosch, 2007). There remains a need to advance our understanding of the relationship between a dysregulation of goal processes and depression as well as identifying individual differences that may mediate the experience of depressive symptoms (Miller & Wrosch, 2007; Wrosch et al., 2011). The narrative review next looks at a body of research which has focused on goal adjustment processes (goal disengagement and goal re-engagement) and rumination proneness, in the self-regulation of unattainable goals and vulnerability to depression (Hervas, 2013; O'Connor, O'Carroll, Ryan & Smyth, 2012; Van Randenborgh et al., 2010; Wrosch et al., 2003a; Wrosch et al., 2003b).

Goal adjustment (goal disengagement and re-engagement) in response to unattainable goals and vulnerability to depression

Wrosch et al. (2003b) conceptualised goal adjustment as characterised by two distinct processes: goal disengagement and goal re-engagement. Goal disengagement is the process of relieving psychological distress by reducing commitment to and withdrawal of effort towards an unattainable goal, preventing repeated goal failure. On the other hand the primary function of goal re-engagement is to provide purposeful future orientated goals and is aimed at increasing positive aspects of subjective wellbeing. Studies have reported that when individuals are faced with discrepancies between their present state and their perceived goal end states they implement regulatory strategies that either engage with a goal and try to attain it or disengage from the goal (Hasse, Heckhausen, & Wrosch, 2013). Carver & Scheier's (1998) Control Theory suggests that individuals will experience elevated levels of psychological distress in situations where a person desires a valuable goal and is unable to make further progress toward the goal. Therefore, in certain circumstances it may be adaptive to recalibrate or disengage from goals (Klinger, 1975; Wrosch, Miller, Scheier, & Brun de Pontet, 2007; Wrosch & Miller, 2009).

An individual's dispositional inability to let go of unattainable goals has been linked to negative 'downstream' implications for many outcomes of development and well-being including mental and physical health, immunological functioning and longevity (Brandstatter, Herrmann, & Schueler, 2013; Heckhausen & Heckhausen, 2010; Wrosch et al., 2011). In relation to mental health, impaired disengagement from unattainable goals and subsequent difficulties re-engaging with alternate goals has been associated to a number of adverse outcomes including depression, suicide and self-harm (Miller & Wrosch, 2009; O'Connor et al., 2009; O'Connor, O'Carrol & Smyth, 2012; Wrosch, Bauer, & Scheier, 2005; Wrosch et al., 2007, Wrosch et al.,

2011). Despite the proposed significance of this self-regulatory capacity in relation to affective disorders there has been a lack of empirical research which has investigated goal adjustment processes within clinical populations.

Theoretical models of goal adjustment in response to unattainable goals

A number of theoretical models have been developed to describe the stages which may be experienced in disengaging from an unattainable goal. Klinger's Incentive-Disengagement Cycle (1975), one of the earliest models to introduce the concept of goal disengagement has elicited renewed theoretical interest (Brandstatter, 2002; Brandstatter et al., 2013; Wrosch et al., 2011). Brandstatter et al. (2013) has developed two theoretical accounts from Klinger's model (1971) to explain goal adjustment. These include the earlier assimilative and accommodative model of goal adjustment (Brandstatter & Rothermund, 2002) and the more recently developed Action Crisis theory (Brandstatter & Schueler, 2012). Goal disengagement and goal re-engagement processes are a central feature within these theoretical accounts (Hasse et al., 2013). The theories delineate stages of disengagement associated with affective and cognitive responses which are hypothesised to facilitate disengagement from unattainable goals and re-engagement with alternate goals. At present these theoretical accounts have been under applied to nor make explicit hypotheses regarding the onset and maintenance of depression.

Klinger's Incentive-Disengagement Cycle (1975) has not been tested empirically but posits a four-phase sequence which is activated whenever a goal is considered either unattainable or no longer considered worthwhile pursuing. The four sequences outlined are; invigoration (individual tries harder to reach their goal), aggression (if efforts go astray), depression (phase of resignation and inner

distancing from the goal) and recovery (commitment to goal withdrawn and open to pursue alternate goals). Klinger (1975) suggested depression was a normal part of the disengagement process and may facilitate disengagement from personal goals.

A limitation of this model is that it does not offer an explanation of how depression becomes prolonged and a maladaptive feature. Also, Klinger's model offers insufficient attention to specify mediating variables that might affect the nature, course or duration of the incentive disengagement cycle or specific reactions which may compromise the cycle. The model needs to be developed to account for affective and cognitive processes that may be linked to difficulties disengaging from an unattainable goal (Brandstatter et al., 2013). There remains a need to identify factors underpinning deficient goal disengagement and the maintenance and exacerbation of depressive mood.

Brandstatter and Schueler (2012) has developed two theoretical models to understand goal adjustment processes in response to an unattainable goal. The earlier model postulated assimilative and accommodative processes which are conceptually similar to disengagement and re-engagement processes. Assimilative processes involve attempts to reduce losses by corrective activities. In contrast, accommodative processes involve disengagement from blocked goals. Brandstatter and Rothermund (2002) assert that when faced by unattainable goals the delayed engagement of accommodative mechanisms may increase the intensity and duration of depressive reactions. More recently Brandstatter et al. (2013) developed the concept of Action Crisis. Action crisis is defined as a point when setbacks in goal pursuit accumulate and the individual is juxtaposed between further goal pursuit and disengagement. The theory refers to the role of affect and cognition in the

disengagement from unattainable goals. The theory is consistent with early work by Carver and Scheier (1998) which addressed the role of expectancies in goal disengagement i.e. if goal expectancies are low then an individual will be more likely to disengage from attempts to attain the goal. The concept of action crisis postulates that it is necessary to devalue the goal's desirability and attainability in order to facilitate disengagement (Brandstatter & Schueler, 2012).

The theory of Action Crisis requires further study within clinical populations and its relevance to the development and maintenance of depression. Nevertheless, it is possible that prolonged and unresolved Action Crises may constitute a heightened risk of depression. Research has suggested that increased emotional distress is associated with difficulties in resolving Action Crises (Brandstatter & Schueler, 2012). Individuals may be more prone to experience higher levels of distress, in relation to the emotional regulatory strategies they adopt, following an action crisis. Herman and Brandstatter (2013) reported that state-orientated (e.g. emotion focused coping) compared to action-orientated (e.g. problem focused coping) responses to Action Crises may lead to the maintenance of distress and more adverse outcomes (e.g. heightened depressive symptoms, difficulties re-engaging in alternate goals and repeated experiences of failure). On this basis a vulnerability to an escalation of depressive affect may be characterised by the coping response an individual adopts in disengaging from an unattainable goal. Depression may be characterised by a prolonged and failed resolution of an Action Crisis. Therefore, there is a need to identify the range of affective and cognitive responses linked to impaired goal disengagement and unresolved Action Crises (Brandstatter et al., 2013).

Empirical research: Goal adjustment processes, unattainable goals and vulnerability to depression

Several studies using non-clinical samples have explored the associations between goal adjustment processes (goal disengagement and goal re-engagement) and the experience of depressive symptoms. Wrosch et al. (2003a; 2003b) summarised a number of studies that found an association between individuals' tendencies to disengage from unattainable goals and goal re-engagement in other meaningful activity with low levels of distress and higher levels of subjective wellbeing. Similarly, Miller and Wrosch (2007) found that adolescent girls who disengaged from unattainable goals showed drops in an immunomarker of the body's inflammatory response. Therefore, this finding suggested that impaired disengagement from unattainable goals may place an individual at risk of heightened depressive symptoms via systemic inflammation associated with impaired goal disengagement. Additionally, it was suggested that persistence in the face of an unattainable goal may compromise an individual's sleep, representing a further risk factor to depression. However, this relationship was not explicitly examined within their study. Previous research has identified that disengagement from an unattainable goal is more significantly related to reductions in depressive symptoms (Miller & Wrosh, 2007; Wrosch et al., 2003a; Wrosch et al., 2003b Wrosch et al., 2007; Wrosch & Miller, 2009; Wrosch et al., 2011). This may be related to the hypothesised function of goal disengagement in its 'freeing' of resources for the pursuit of alternate goals; relieving distress and re-orientating a person's focus on success as opposed to failure (Wrosch & Miller, 2009).

A general limitation of the previous studies is that they have predominantly relied on non-clinical populations. Similarly, research has not adequately identified how and why impaired goal disengagement may be linked to depressive affect, despite the suggested link between impaired goal disengagement and elevated depressive symptoms (Miller & Wrosch, 2007; Wrosch & Miller, 2009). Nonetheless, goal adjustment processes represent an important self-regulatory capacity and researchers have suggested that an individual's goal-regulation tendencies are consistent across different pursuits. This may represent a trait-like vulnerability to experience difficulties across multiple self-relevant goal domains (Wrosch et al., 2003a).

In contrast there have been a few studies reporting that initial depressive symptoms may fulfil an adaptive function and facilitate disengagement from an unattainable goal; this challenges the view of depression as being a purely maladaptive response (Keller & Nesse, 2006; Wrosch & Miller, 2009). Several studies have supported this view. For example, Van den Elzen and Macleod (2006) found that elevated depressive symptoms facilitated disengagement from cognitive plans related to unattained goals. Similarly, Wrosch and Miller (2009), in a longitudinal study found that adolescent girls with higher baseline depressive symptoms developed increased goal disengagement capacities which were subsequently associated with a decline in depressive symptoms.

On the basis of these findings, Van den Elzen and Macleod (2006) hypothesised that impaired goal re-engagement subsequent to goal disengagement may place individuals at greater risk to depression. It has been suggested that a deficit in formulating new plans would leave an individual 'chronically disengaged'

from a previous unattained goal but not engaged in an alternate activity, therefore at increased likelihood of becoming depressed. Van den Elzen and Macleod (2006) have suggested that whilst depressive symptoms may facilitate disengagement from an unattainable goal, difficulties formulating new plans and re-engaging in alternate goals might characterise depressed individuals. These theoretical assumptions have been based on studies relying on non-clinical populations who were experiencing sub-clinical levels of depressive symptoms. This limits the ability to generalise from these findings. Consequently, any conclusions concerning goal adjustment responses, which may prolong depressive symptoms, must await the outcome of future research using clinical samples.

Despite a paucity of research into goal adjustment within depression and although not directly related to depression, two recent studies have reported adverse mental health outcomes (suicidal ideation and self-harm) associated with distinct goal adjustment profiles in responding to unattainable goals (O'Connor et al., 2009; O'Connor et al., 2012). O'Connor et al. (2012) explored goal adjustment processes within a sample of patients with a history of attempted suicide, experiencing a range of emotional distress, including depressive symptoms. The study participants were followed up two years after their attempted suicide. The study found that participants who reported high disengagement and low re-engagement were at high risk for suicidal ideation and self-harm. In addition, low disengagement from unattainable goals predicted self-harm re-hospitilisation. The study suggested two distinct goal adjustment profiles in response to an unattainable goal that may place an individual at heightened risk of adverse outcomes. These profiles included impaired goal re-engagement subsequent to goal disengagement

and impaired goal disengagement from an unattainable goal. Therefore, it will be important to establish if these profiles are found across affective disorders. Also, the study may highlight goal adjustment features and their salience to the higher levels of self-harm and suicide found within depressed individuals, which O'Connor et al. (2012) relate to 'chronic goal failure.' A limitation of O'Connor et al's. (2012) study is that it did not establish whether a lack of re-engagement arises from an inability to generate alternative goals (e.g., feeling as if there are no other options) or other obstacles such as a basic amotivational orientation toward new alternatives. There is a need to address the deficit within the research regarding the obstacles which result in poor mental health outcomes and impair an individual's capacity to disengage and re-engage in potentially healthier and more rewarding alternate goals.

Comparatively less research attention and importance has been given to goal re-engagement rather than goal disengagement. Despite it being a process that may be equally important in the self-regulation of unattainable goals and its associated affect (Wrosch et al., 2011). There have been mixed findings regarding the influence of goal re-engagement in attenuating depressive symptoms (Miller & Wrosch 2007; Wrosch et al., 2003b; Wrosch & Miller, 2007; Wrosch et al., 2011). Heckhausen & Heckhausen (2010) have theorised that goal re-engagement, may reduce depressive symptoms, involving shifts in goal pursuit and refocusing on positive aspects of a new goal; for example, intrusions and rumination about goal failure. Similarly, Wrosch et al. (2003b) predicted that individual differences in the capacity to identity new goals should be differentially attributable to higher levels of purposeful future orientated thoughts and lower levels of failure-orientated thoughts. However, at

present, it has not been found with any consistency, across studies involving non-clinical populations, that the process of goal re-engagement has a 'buffering effect' on depressive symptoms (Wrosch & Miller, 2009; Wrosch et al., 2011;). Generally, it has been suggested that goal re-engagement may exert a weaker effect on depressive symptoms compared to goal disengagement. This has been linked to the premise that the primary function of the process is not specifically to relieve depressive symptoms (Wrosch & Miller, 2009).

An alternative explanation concerning goal re-engagement may be that the positive impact of goal re-engagement is reduced if an individual remains committed to an unattainable goal but reduces the effort they exert towards attaining or disengaging from the goal (Hadley & Macleod, 2010; Wrosch et al., 2011). An individual may need to sufficiently disengage both their effort and commitment from the unattainable goal in order to experience the rewarding benefits of goal re-engagement. This view is supported by previous research that has suggested that the 'buffering effects' of goal re-engagement may be ineffective if an individual withdraws effort but remains committed to and unable to disengage from an unattainable goal (Wrosch et al., 2003a; Wrosch et al., 2007; Wrosch et al., 2011). Impaired disengagement from an unattainable goal may leave an individual vulnerable to repeated experiences of failure. This accumulation of negative affect with subsequent difficulties re-engaging in alternate, potentially rewarding goals represents a possible pathway to depression (Strauman, 2002; Strauman & Wilson, 2010). Furthermore, Dickson et al. (2011) found specific cognitive responses to goals differentiated depressed individuals from non-depressed individuals. Depressed individuals were characterised as having more pessimistic expectancies regarding

their goals. Thus, lower expectancies of achieving future goals may impact on an individual's capacity to re-engage with alternate goals. This reinforces the need to identify cognitive factors that may mediate goal re-engagement processes and be implicated in the onset and maintenance of depression.

In addition, the hypothesised weaker effect of goal re-engagement on reducing depressive symptoms is discordant with currently recommended behavioural treatments for depression (e.g. behavioural activation; NICE, 2012). This therapy is aimed at increasing the frequency and quality of pleasant activities based on the finding that a core deficit within depressed patients is low rates of pleasant and rewarding activities (Dimidjian, Hollon, Dobson, Schmaling, Kohlenberg et al., 2006). Previous findings regarding goal re-engagement may be limited in their validity because of a reliance on non-clinical populations who experience significantly lower levels of depressive symptom in comparison to clinical populations. Therefore, it is possible that goal re-engagement may fulfil an important function in conjunction with goal disengagement within clinically depressed individuals experiencing higher levels of depressive symptoms. There is a need to research the twin function and relationship between goal adjustment processes within a clinical population. This is particularly important given that impaired goal disengagement may compromise the adaptive function of goal re-engagement. This is consistent with Brandstatter & Rothermund's. (2012, p.118) assertion that 'goals turn into sources of dissatisfaction and depression when they become unattainable or exceed individual resources—at least when the persons remain committed to them.'

As mentioned earlier, depression has been linked to distinct goal profiles characterised by approach and avoidance motivation (Trew, 2011). However, goal adjustment focused studies have not explicitly identified nor qualitatively differentiated between the approach and avoidance orientation of unattainable goals, in relation to goal disengagement (Miller & Wrosch, 2009;; Wrosch et al., 2003a; Wrosch et al., 2003b; Wrosch et al., 2005; Wrosch & Miller, 2007; Wrosch et al., 2011). It is possible that differential goal orientations may affect disengagement from an unattainable goal and the re-engagement with alternate goals. Research in other areas has found that individuals holding approach goals may have a greater capacity to generate alternate goal pursuit strategies in comparison to the impact of avoidance goals (Lench & Levine, 2008).

An inability to generate alternate goal pursuit strategies may limit the ability of people with avoidance goals to disengage from an unattainable goal, owing to the perception that their present goal may be their only opportunity to avoid failure. Furthermore, avoidance motivated individuals have been reported to have greater difficulties recognising when to disengage from an unattainable goal, becoming less able to disengage, following depressive mood and thoughts related to potential failure (Lench & Levine, 2008). A clinical hypothesis has been constructed from this study suggesting that inflexible goal regulation, associated to avoidance goals and lower levels of approach goals, may impair disengagement from an unattainable goal and represent a vulnerability to depression.

There are a number of limitations which may restrict the ability to generalise from Lench and Levine's (2008) findings to a clinical population. First, a non-clinical sample was used and therefore it remains to be seen if the study findings are

replicated within a clinical sample. Second, the study operationalised goal disengagement as the point at which participants forwarded to the next task within the study. This definition is limited given that people who behaviourally stop pursuing a goal may still value and remain consciously committed to the goal (Wrosch et al., 2003b). The paucity of available research examining the interaction between goal orientation, goal adjustment and depressive symptoms, may be a reflection of currently there being only one objective measure available to identify goal adjustment (Wrosch et al., 2003a). This measure does not distinguish the relationship between goal orientation and goal adjustment processes. In order to undertake further research within this area there is a need to develop an appropriate measure to distinguish goal adjustment processes relevant to goal orientation.

Until recently goal adjustment research has not adequately identified individual differences, in maladaptive regulatory responses to unattainable goals, which may be implicated in the onset and maintenance of depressive symptoms (Wrosch et al., 2011). Research has not given adequate attention to the affective and cognitive processes in individuals for whom goal disengagement may be impaired. More recently, within a student sample, Eddington (2013) found an interaction between perfectionism (e.g. individuals with a greater unwillingness to let go of unsuccessful goals) and goal disengagement which predicted higher levels of depressive symptoms and the use of poor coping strategies, in response to an unattainable goal (e.g. isolation, detachment and self-blame). This highlighted the influence of cognitive responses to goal pursuit which may mediate goal adjustment processes and the experience of depressive symptoms. In addition, Wrosch et al.

(2011) found that maladaptive re-engagement processes (e.g. venting and self-distraction) were associated with a vulnerability to experience heightened depressive symptoms. Therefore, maladaptive goal re-engagement processes may represent a distinctive feature of individuals who are predisposed to experience elevated levels of depressive symptoms.

Relatively little is known about the relevance of goal adjustment to depression and the factors affecting the process, despite the potential self-regulatory significance of goal disengagement and goal re-engagement. There is a significant gap in the literature examining how depressed individuals regulate their disengagement from unattainable goals and subsequent re-engagement in alternate goals. This indicates a requirement to further investigate vulnerabilities to depression associated with the self-regulatory strategies individuals adopt in their management of an unattainable goal. One specific process that may shed light on maladaptive goal regulation strategies is rumination. Research has highlighted that individuals with depression report higher levels of maladaptive e.g. emotion focused rumination (Nolen-Hoeksema, 2000), yet little is known about how this tendency may interact with goal adjustment processes.

The influence of rumination on goal adjustment (goal disengagement and re-engagement) and vulnerability to depression

As previously highlighted in the review, the goal adjustment literature has neglected identifying the self-regulatory strategies which may mediate individuals' goal adjustment abilities, in response to an unattainable goal. This may predispose some individuals to experience greater difficulties in the self-regulation of unattainable goals. On this basis the second aim of the review is to consider research

in to the influence of rumination: identified as a potential pathway to depression, through deficient goal disengagement (Van Randenborgh et al., 2010). Eddington & Foxworth (2012) has suggested that the self-regulation of goals may become disrupted when attention is excessively focused internally. However, it is unclear how rumination once activated may interfere with the self-regulation of goals. Despite the potential importance of such research in understanding depression from a goal self-regulation perspective there have been no direct studies within a clinical population which have explored the interaction between rumination and adjustment to an unattainable goal.

Theoretical models of rumination, goal self-regulation, and vulnerability to depression

Theories have been developed to explain rumination distinguishing its constructive and unconstructive affects (see Watkins, 2008 for a review). Martin and Tesser's (1989) Goal Progress Theory of ruminative thought describes a sequence of processes following the frustration of a goal (e.g. repetition of instrumental behaviour, attempting to find alternate routes to the goal, end state thinking and negotiation for goal abandonment). The theory conceptualises rumination as a response to failure to progress satisfactorily towards a goal, opposed to as a reaction to a mood state. Martin & Tesser (1996) posit that rumination is most commonly prompted when the individual does not progress towards their goals as planned and that rumination is a natural human experience and facilitates self-regulation of goals. Martin & Tesser (1996) propose that individuals ruminate about goals they have not attained as to evaluate how best to pursue them.

This contrasts with other theories of rumination, for example, Nolen-

Hoeksema (1991, p.569) who defined rumination as 'behaviors and thoughts that focus one's attention on one's depressive symptoms and on the implications of these symptoms.' This form of rumination has been implicated in the development, maintenance, and exacerbation of depressive affect as well as episodes of major depression. In light of these differing viewpoints, rumination has been conceptualised as either self-focused thoughts to resolve goal attainment or conversely self-focused repetitive thoughts associated with a range of negative outcomes (Watkins, 2008). Therefore, if the core purpose of rumination is to discover alternate pathways to blocked goals, this would be quite useful and adaptive when goals are attainable but would be maladaptive when goals are in fact unattainable. Similarly, a ruminative response focused on the affect associated with adjusting to an unattainable goal could be equally maladaptive.

The validity of these hypotheses warrants further study. To date, little research has been undertaken within clinical populations to examine the relationship between the function of ruminative responses described within Goal Progress Theory (Martin and Tesser, 1996) and Nolem-hoeskema's (2000) Response Styles Theory, in adjusting to unattainable goals. Whilst juxtaposed, it is the case that these theoretical viewpoints focus on differing constructs of rumination. The former conceptualises rumination as focused on unresolved problems and problematic goals attainment whilst the latter definition of rumination focuses on mood and its causes. Therefore, there is a need for research to establish if differing ruminative responses are associated with greater emotional difficulties in the regulation of unattainable goals.

The Goal Progress Theory has not adequately distinguished features that may

cause rumination to become constructive or unconstructive and does not address individual differences in whether such thought becomes unconstructive or constructive. However, subsequent research has highlighted that rumination can be maintained and may become maladaptive if an individual interprets their rumination as a sign of inadequacy or losing control and makes attempts to suppress rumination. In this scenario rumination may be perceived as a problem as opposed to an adaptive response (Papageorgiou & Wells, 2009; Wells, Fisher, Myers, Wheatley, Patel, & Brewin, 2009). These tendencies may lead an individual to fail to progress towards their goals whilst maintaining maladaptive rumination.

The Goal Progress Theory was not developed to explain the onset and development of depression; however, features of the theory may help to explain the interaction between rumination, negative affect and impaired disengagement. For example, continued and preservative ruminative thinking, on the discrepancy between one's current state and a desired future state, may lead to increased depressive mood, negatively focused rumination and inaction (Watkins, 2008). This pattern of response may represent a distinctive feature of individuals at risk of developing depression.

Additionally, Watkins (2008) has proposed that Control Theory (Carver and Scheier, 1990) may provide a theoretical framework to guide future research (e.g. to help understand how thinking, action and emotional state interact) in to understanding the links between rumination, impaired goal regulation and vulnerabilities to depression. In line with Carver and Scheier's (1990) self-regulatory Control Theory, a maladaptive ruminative response may disrupt the normative interaction between emotions and goals. Rumination may become unconstructive in

situations in which an individual is unable to progress in their goal pursuit, whilst remaining committed to the goal. Depressive ruminators have been found to have difficulties in their flexibility towards regulating cognitive processing in response to goal difficulties (Strauman & Wilson, 2010; Watkins, 2008; Watkins, 2011;).

To date, goal self-regulatory models (Carver, 2006) have not sufficiently accounted for the transition from adaptive negative affect, experienced following perceived failure to attain and disengage from a personal goal then becoming prolonged and a maladaptive feature within depressed individuals (Jones, Papadakis, Hogan & Strauman, 2009; Van Randenborgh et al., 2010). At present, it is unclear why some people engage in prolonged rumination in response to problematic goal attainment. Theories of goal self-regulation need to be further developed in order to explain the relationship between depression and the dysregulation of specific processes within these models. In depressed individuals the dynamics or processes that explain disengagement from personal goals are still not well understood.

Empirical research: influence of rumination in adjusting to unattainable goals and vulnerability to depression

Individuals need to be flexible when confronted with problematic goal attainment, to be able to recognise when to continue effort to goal attainment or to abandon or revise unattainable goals (Wrosch et al., 2003b). Studies have suggested that ruminative responses to unattainable goals may hinder goal disengagement and may represent a trait-like vulnerability to depression (Herman & Brandstatter, 2013; Lench, 2008; Trew, 2011; Van Randenborgh et al., 2010). Di Paula and Campbell (2002) found that goal related reflections, similar to rumination, may persist for some time after goal related behaviour has ceased and represent a trait associated

with a high risk for experiencing elevated depressive symptoms. This finding is consistent with Schroevers, Kraaij and Garnefski (2007) study which found that higher levels of depressive symptoms were associated with maladaptive cognitive coping responses to problematic goal attainment (rumination, self-blame, catastrophising).

Moberly & Watkins (2010) reported that the perception of failure to attain important, personally relevant goals can lead to increases in rumination and depressive symptoms. This finding suggests that the importance of an individual's goal may influence the relationship between rumination and depressive symptoms. Similarly, Masicampo and Baumeister (2011) found the continued focus on an unattained goal can interfere with attentional resources necessary to pursue other alternate goals, particularly when the unattained goal was important to the individual. In contrast, Jones et al. (2009) found that in response to goal failure individuals who adopted a reflective stance did not experience an increase in depressive symptoms. However, moderate to low levels of reflection were associated with increased depressive symptoms.

Research has suggested that emotion focused rumination may prolong the impact of perceived failure in goal progress and thereby intensify depressive emotional states (Jones et al., 2009; Jones, Papadakis, Orr & Strauman, 2013). The previous studies suggest that a vulnerability to depressive affect may be associated to the self-regulatory response an individual adopts, characterised by a recurrent pattern of ruminative responses, focusing on failure to achieve personal goals; thereby exacerbating depressive mood. Also, study findings suggest that an inability to divert attention away from important previously unattained goals may restrict the

necessary attentional resources to effectively pursue alternate goals. Masicampo and Baumeister (2011) suggest that clinically depressed individuals may be more susceptible to the effects of unattained goals due to the self-regulatory style they adopt.

The previous studies have a number of limitations. Studies used graduate students and non-clinical adult populations, which affects the ability to generalise the applicability of the results to a clinical population. In particular, Schroevers et al's. (2007) study used a student sample which may have affected the nature of the stress they were reporting in relation to problematic goal attainment goal (e.g. low incidence of loss experiences) and their engagement in maladaptive cognitive coping. The interaction between an individual's engagement in maladaptive cognitive coping in response to an unattainable goal may be mediated by the significance of the loss. In addition, Masicampo and Baumeister (2011) did not identify specific cognitive responses which may have influenced an individual's ability to disengage from an unattained goal and focus on alternate task. Similarly, Jones's et al's. (2009) study failed to measure whether individuals who failed to attain goals were more generally ruminating on past failures which may have placed individuals at a greater risk of experiencing more depressive symptoms.Furthermore, Jones's et al's. (2013) sample was predominantly female which they suggest may have inflated the effect size of rumination.

Importantly, Moberly and Watkins (2010) found that their study variables were not associated with emotion-focused rumination. This may be accounted for by the fact that they used non-clinical participants reporting low levels of negative affect which may not have elicited emotion focused rumination. It is possible that

emotion focused ruminative responses were not associated with their study variables (i.e. goal importance and goal success) however this response could be associated with other features of goal behaviour that were not explored. Furthermore, the ruminative response identified within this study was reflective of Martin & Tesser's (1996) conceptualisation of adaptive rumination (i.e. problem focused). The study did not capture dysfunctional forms of rumination which may maintain goal discrepancies and prolong distress. Therefore, there is a need to identify circumstances that may lead to maladaptive ruminative responses and whether this is a feature of depressed individuals.

In addition, previous research has suggested an interaction between rumination and affect, in the regulation of unattainable goals and attainment of alternate goals. Eddington and Foxworth (2012) found that following goal conflict, individuals with both high levels of self-focused attention (SFA, a form or rumination) and high levels of depressive symptoms, responded with lower performance expectancies and reduced effort towards future goal behaviour. This finding may indicate self-regulatory vulnerabilities to depression linked to an amotivitional attitude to pursue alternate goals, following difficulties in goal pursuit. In addition, a ruminative response may reduce cognitive resources directed towards alternate goal pursuit. Similarly, Roberts, Watkins and Wills (2013) reported an interaction between rumination, negative affect and goal failure. They found that individuals with a higher tendency to ruminate responded to the cueing of an unattained goal with prolonged and maladaptive rumination, leading to depressive mood.

Jones et al. (2013) has proposed a 'feedforward mechanism' following unattained goals whereby depressive affect and rumination reciprocally interact,

transforming acute distress into chronic distress. These studies may explain why certain individuals are at greater risk of depression arising as a consequence of their engagement in ruminative strategies to regulate goal behaviour. In contrast, Van Randenborgh et al. (2010) found that self-focused rumination hindered disengagement from unattainable goals but that the effects of rumination were independent of mood. This finding may be related to the fact that participants within this study, assigned to the rumination condition, reported low depressive scores which may have led to them being less responsive to the induction of rumination. Therefore, it is uncertain if a similar finding would be reported with higher levels of depressive mood.

There are a number of limitations in these studies with implications for future research. Research has relied on non-clinical participants and has focused on goal processes in artificial settings with tasks that may have lacked ecological validity. Studies with greater ecological validity are needed to examine the influence of rumination on goal pursuit and the experience of depressive affect. Also, studies have used different measures of rumination which may have captured different constructs. As previously discussed, it has not been clearly established whether goal dysregulation and higher levels of depressive symptoms are more strongly associated with certain aspects of ruminative thought (e.g. problem focused or emotion focused). There has been little research examining whether emotion focused rumination is associated with more maladaptive responses to goal regulation. Research has highlighted a need to more closely examine the relationship between maladaptive rumination and goal behaviour which may be associated with more affective impairments (Moberly & Watkins, 2010). There is a need to establish

how maladaptive ruminative responses may impair effort mobilisation towards alternate goals and goal disengagement, maintaining goal discrepancies and prolonged distress.

Finally, as previously discussed, there has been very limited research examining the association between goal orientation, goal adjustment and depressive mood. Equally, there is a lack of research investigating the influence of rumination which may mediate these processes. Despite the lack of research, recent motivational goal research has suggested that the orientation of an individual's goal motivation may influence their susceptibility to the effects of rumination and experiences of depressive mood. Kircanski, Mazur and Gotlib (2013) reported that low approach motivation increased an individual's susceptibility to the effects of rumination and depleted cognitive resources necessary to engage in alternate goals. Also, it has been suggested that heightened avoidance motivation may contribute to difficulties disengaging from unattainable goals by restricting access to positive sources of reinforcement and by facilitating negative information processing (Trew 2011).

These findings demonstrate that susceptibility to the effects of rumination and goal adjustment may be linked to the orientation (approach or avoidance) of goal motivation. Present research has not directly studied these variables within a clinical population but such research may help to develop a deeper understanding of goal motivation and goal self-regulatory vulnerabilities linked to the onset and maintenance of depression.

Clinical implications

Karoly (2006, p.1) suggests that 'the asking and answering of dynamic questions about the day-to-day flow of goal episodes, particularly in symptomatic or vulnerable persons, should also have practical implications for psychotherapy and prevention.' Similarly, there are clinical implications for the treatment of depression arising from these studies which need to be interpreted cautiously prior to further research involving appropriate clinical populations.

Subject to this caveat, studies suggest that clinical attention should be given to processes of goal adjustment. Also, that therapy should be structured to facilitate cognitive strategies to enable successful goal identification and pursuit (O'Connor et al., 2012; Van Randenborgh et al., 2010). In supporting individuals, that it may be useful to locate the specific processes or reasons behind their goal adjustment difficulties. From a goal self-regulation perspective, Trew (2011) concluded that helping depressed individuals to disengage from unobtainable goals, either temporarily or permanently, may improve treatment outcomes by increasing resources for behavioural activation.

In contrast, Wrosch and Miller (2009) assert that goal disengagement warrants psychotherapeutic acknowledgement where intervention techniques are aimed at strengthening an individual's goal disengagement capacities. Also, suggesting that failure to address this may leave an individual committed to unattainable plans and vulnerable to relapse. Van den Elzen and Macleod (2006) suggest that therapeutic interventions should focus on an individual's capacity for disengagement from goal plans that have become 'obsolete', as opposed to interventions solely focusing on reducing depressive mood state, as this may decrease their capacity to disengage from such plans in the future.

A number of therapeutic techniques may facilitate the disengagement from unattainable goals. Macleod and Conway (2010) have posited that some individuals struggle to disengage from some goals because they believe that their future well-being (happiness, self-worth, fulfilment) is dependent on those goals being achieved. Therefore in enhancing psychological flexibility in adjusting to unattainable goals therapeutic strategies from Acceptance and Commitment Therapy (ACT) may prove useful (Hayes, Luoma, Bond, Masudo, & Lillis, 2006). ACT uses acceptance and mindfulness strategies mixed in different ways with commitment and behaviour-change strategies, to increase psychological flexibility. These techniques may enable individuals to get in touch with their 'values' and discover what is important to one's true self. Also, reactivate 'committed action' through the setting of alternate goals according to their values. Importantly, this may enable individuals to relinquish unattainable goals and reengage in alternate rewarding goals.

In addition, interventions from Cognitive Behavioural Therapy may support the disengagement from unattainable goals. Behavioural activation treatments may help individuals redirect towards more meaningful and realistic goals thereby promoting disengagement from unrewarding goal pursuits. Also, cognitive restructuring techniques may be salient to the disengagement from unattainable goals. Firstly, such techniques may raise an individual's awareness of negative thinking linked to their struggle disengaging from unattainable goals. Secondly, stimulate a re-evaluation of negative interpretations (e.g. 'my future wellbeing is depended on the achievement of all my goals') and possibly help an individual reframe their goals in a manner supportive of disengagement. Finally, enhancing an

individual's social, coping and problem solving skills may assist the development of instrumental skills necessary for effective goal regulation.

Additional findings highlighted that, in response to goal difficulties, cognitive strategies play an important role in the level of depressive symptoms. This too may have important implications for therapeutic interventions (Schroevers et al., 2007). Taken collectively, theoretical models of depression which combine motivational and cognitive aspects may improve treatment outcomes (Eddington & Foxworth, 2012). This is particularly relevant to individuals prone to ruminate which can prolong recovery from depression (Jones et al., 2013; Roberts et al., 2013). Therapeutic intervention may assist depressed individuals if focused on the formulation and execution of cognitive plans to resolve goal difficulties (Van den Elzen & Macloed, 2006). This is not an uncommon goal within most conventional cognitive therapies. It has been suggested that it may be more therapeutically beneficial to engage in cognitive restructuring, whilst depressive affect remains present, rather than through either psychological or pharmacological interventions, aimed at attenuating depressive affect (Van Randenborgh et al., 2010).

Future research recommendations

To reiterate, despite the self-regulatory significance of goal disengagement and goal re-engagement, relatively little is known about the relevance of these processes to the onset and maintenance of depression. Similarly, the factors affecting goal disengagement and goal re-engagement have been under-researched (Wrosch et al., 2011). Wrosch et al's. (2003b) explanation of effective disengagement (i.e. both the reduction of commitment and effort towards a goal) suggests that an individual may be vulnerable to depression from repeated

experiences of failure where effort is reduced but without a similar reduction in commitment to disengaged goals. This pattern of response may be linked to the onset and maintenance of depression and should be examined within future research.

Research is therefore required to examine specific, differentiated goal adjustment responses to unattainable goals which have been hypothesised as representing a vulnerability to depression. For example, impaired goal disengagement and difficulties re-engaging in alternate goals following disengagement from an unattainable goal (O'Connor et al., 2012; Van den Elzen & Macloed, 2006). Also, future research should track the availability of alternative goals, within clinical populations, as well as individual motivation to engage in new goals. This is to determine the extent to which the availability of alternate goals influences goal re-engagement (O'Connor et al., 2012).

To date there has been an absence of research that has explored the potential theoretical relevance of goal motivation research to other areas of study which have also been implicated in depression. Specifically, the area of Learning Theory which posits that depression is a consequence of person's interaction with their environment (Lazurus, 1968). It could be suggested that goal motivation research offers a new lens and perspective to learning from a motivational perspective; particularly in the study of depression.

Research has rarely examined goal motivation and depression in regards to learning theory. However, tentative links could be hypothesised between the two areas and the onset and development of depression. For example, in regards to approach goal motivation, individuals who perceive themselves as doing poorly on

goal progress towards desirable outcomes may be more vulnerable to depression whereas individuals who perceive themselves as making good progress may experience more positive experiences which in turn promotes wellbeing (Dickson et al., 2011). In terms of learning, perceived goal progress and movement towards desirable goal outcomes is likely to enhance goal commitment as well as bolstering and sustaining goal effort in the face of obstacles. Furthermore, it could be anticipated that successful approach goal pursuit is likely to reinforce such behaviour in the future as it is anticipated that individuals will experience positive affect through such achievement. Therefore, it is proposed that this would create a positive reinforcing cycle for such behaviour in the future. Whereas individuals failing to reach desirable outcomes (approach goals) may have less opportunity to experience positive reinforcement therefore goal pursuit and learning may become a more negative and laboured experience. In more severe cases of impaired goal pursuit or chronic goal failure it is likely to lock a person in depression and hinder learning capacity and motivation for learning. The integrative potential of motivational theory and learning theory warrants further attention.'

To date, preliminary studies have started to examine the importance of goal disengagement but have been limited in scope and need to be considered in relation to other relevant constructs (Watkins, 2008). From further consideration, there may emerge a number of as yet unexplored factors that may mediate individual capacities to disengage from an unattainable goal (Brandstatter et al., 2013; Hadley & Macleod, 2010; Wrosch et al., 2003a; Wrosch & Miller, 2009). In general, goal adjustment processes within depressed individuals represent an important but under-researched area. Future research also needs to identify other additional

factors that may mediate an individuals' capacity to regulate affect through a process of goal adjustment (O'Connor et al., 2012; Wrosch et al., 2003b).

Various pathways through which rumination has been linked to depression have been well-researched (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). However, a pathway to depression where rumination is linked to hindered goal disengagement is an area which remains comparably under-researched within clinical populations (Van Randenborgh et al., 2010; Watkins, 2008). In this regard, Watkins (2008) recommended closer examination of goal disengagement and its relationship with rumination given the established link between these processes and the impact on mental health (Rasmussen, Wrosch, Scheier, & Carver, 2006; Wrosch et al., 2003a; Wrosch et al., 2011). Research is required to examine whether rumination represents an antecedent to depression, through deficient goal disengagement and to clarify if rumination proneness mediates the relationship between goal adjustment and depression (Van Randenborgh et al., 2010). A clinical question remains with regard to why some people persist in engaging in prolonged goal related reflections, which adversely affects their mental health, whereas others are more readily able to disengage. There is a need to identify the additional cognitive processes which may mediate an individual's engagement in rumination, in the context of self-regulation of unattainable goals. Moulds, Yap, Kerr, Williams and Kandris (2010) suggest that an important determinant of individual engagement in rumination in response to negative mood (e.g. disengaging from an unattainable goal) is the extent to which the individual holds beliefs about the usefulness of rumination. This is an important area for future research of goal adjustment and depression.

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Chapter 2: Empirical paper

Goal motivation, goal adjustment and the influence of metacognitive ruminative beliefs within depression[1]

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Abstract

Goal motivation and goal regulation processes have been implicated within depression. This study examined whether depressed participants differed from controls on their approach and avoidance goal pursuit, goal expectancies, goal adjustment and whether metacognitive ruminative beliefs mediated goal adjustment and depression. Depressed participants (*N*=42) were recruited from two Improving Access to Psychological Therapy clinics. Control participants (*N*=51) were recruited from the same region. Participants generated personal approach and avoidance goals and completed self-report measures on goal likelihood, goal adjustment and depressive symptoms. Depressed participants also completed measures on ruminative metacognitive beliefs. Depressed participants reported fewer approach goals, gave lower likelihood judgements for approach goal outcomes and higher for avoidance goal outcomes. The groups did not differ on number of avoidance goals. Depressed participants reported higher goal disengagement and lower goal re-engagement than controls. Finally, negative metacognitive ruminative beliefs significantly mediated an indirect relationship between goal re-engagement and depression. Findings highlight goal motivation and goal self-regulatory processes which characterised depressed individuals.

Keywords

Goal motivation, Goal adjustment, Depression, Metacognitive ruminative beliefs

Introduction

Distinct goal profiles and the dysregulation of goal processes have been linked to depression (Johnson, Carver & Fulford, 2010; Wrosch, Scheier, Carver & Schulz, 2003). Despite its theoretical importance, there has been limited research examining goal motivation within depression (Mcevoy, Law, Bates, Hylton & Mansell, 2013; Sherratt & Macleod, 2013). Motivational goal research has reported mixed findings regarding the association between distinct goal processes and depression. It remains somewhat unclear whether depression is characterised by either blunted goal motivation or by a profile of low approach and high avoidance motivation (Bijttebier, Claes & Vandereyeken, 2009). Research is required to develop an understanding of the relationship between goal motivation and depression (Brown, 2012; Carey, 2011; Higginson, Mansell & Wood, 2011).

Depression has been linked to dysfunctions in goal motivation sub-systems (Hervas & Vazquez, 2013). These have been theorised in Gray's (1982) Reinforcement Sensitivity Theory, which proposes two independent motivational systems; approach and avoidance. Fowles (1994) characterised depression by low approach and high avoidance motivation. Non-clinical adolescent studies have lent support to Fowles' theoretical assumptions (Dickson & Macloed, 2004; Dickson & Macloed, 2006). Clinical studies have tended to report a deficit in approach motivation in depression (McFarland, Shankman, Tenke, Bruder, & Klein, 2006) However, findings have been more mixed concerning avoidance motivation (Grawe, 2007; Spielberg, Heller, Levin Silton, Steward, & Miller, 2011). Bijttebier, Claes and Vandereyeken (2009) concluded that high avoidance motivation may represent a 'state dependent characteristic' of depression whereas low approach motivation

represents a 'true vulnerability marker.' Few studies have directly examined individuals' approach and avoidance goals within depression and the evidence supporting the approach-avoidance characteristic in depression is mixed with a need to extend research within clinical populations (Sherratt & Macleod, 2013). Therefore, the first aim of this study is to investigate whether depressed individuals report fewer approach goals and more avoidance goals than non-depressed individuals.

Goal expectancy is also central to motivation and is important in determining the effort an individual exerts towards future goals and the likelihood of success (Carver, 2006; Carver & Scheier, 1998). The Reformulated Learned Helplessness Theory (Abramson, Seligman, & Teasdale, 1978) and Hopelessness Theory (Abramson, Metalsky, & Alloy, 1989) posit that individuals' expectancies for future outcomes are linked to the development of emotional distress. The theories suggest that individuals who attribute negative events to internal, stable, and global causes are more likely to experience learned helplessness and are predisposed to depression (Johnson, Carver & Fulford, 2010). However, clinical research has predominantly focused on expectancies of hypothetical events whereas goal expectancies have been neglected in depression studies (Rothbaum, Morling, & Rusk, 2009). Despite the lack of clinical research, a recent study by Dickson, Moberly and Kinderman (2011) found that depressed participants do not lack valued goals but were more pessimistic about their likelihood. Therefore, consistent with these findings the present study will examine whether depressed individuals, compared to controls, report avoidance goal outcomes as more likely to happen and approach goal outcomes as less likely to happen.

Individual differences are not well understood in goal self-regulatory capacities and depression, despite the exercise of control over goals being considered important to mental health (Kashdan & Rottenberg, 2010; Wrosch et al., 2003). Control theory proposes that negative affective states are a response to a discrepancy between a person's current state and their desired end-state, motivating adjustment or withdrawal of effort and commitment to a goal pursuit (Carver, 2006; Mansell, 2005). Control theorists suggest that psychological difficulties may be maintained by inflexible control processes (Carver & Scheier, 1990; Mansell, 2005; Watkins, 2011).

In line with Control Theory, Wrosch et al. (2003) proposed that goal adjustment abilities fulfil an important self-regulatory capacity, underpinned by two distinct abilities, goal disengagement and goal re-engagement. These are theorised as separate functions in regulating goal behaviour and associated affect. Goal disengagement is thought to relieve psychological distress by reducing commitment and withdrawal of effort towards an unattainable goal, preventing repeated goal failure. Goal re-engagement, on the other hand, provides purposeful future orientated goals and increases positive aspects of subjective wellbeing (Wrosch, Miller, Scheier & Brun de Pontet, 2007).

Differences in adjusting to unattainable goals are thought to represent a vulnerability marker to depression (Miller & Wrosch, 2007). The most adaptive response for mental health is to withdraw effort and commitment away from unattainable goals, which has been associated with better mental health outcomes (Wallace, Dombrovski, Morse, Houck, Frank, Alexopoulos, 2012). Continued pursuit of unattainable goals is suggested to substantially reduce self-regulatory efficiency

and pose a risk of depression (Miller & Wrosch, 2007). Generally, goal disengagement is thought to be more significant in reducing depressive symptoms compared to goal re-engagement (Wrosch, 2011).

Researchers have hypothesised distinct goal adjustment profiles, in response to unattainable goals that may characterise depression. These include both impaired goal disengagement (Hadley & Macleod, 2010; Wrosch & Miller, 2007) and impaired goal re-engagement processes (Van den Elzen & MacLeod 2006). Pyszczynski and Greenberg's (1987) Self-Regulatory Preservation Theory posits that individuals may have difficulties disengaging from important unattainable goals. The theory argues that preserved pursuit of an unattainable goal can create a 'spiralling' process to depression and the development of a depressive attributional style (Trew, 2011).

In addition, Wrosch, Amir and Miller (2011) suggest that goal re-engagement may be compromised if an individual withdraws effort but remains committed to an unattainable goal. Reduced motivation to engage in rewarding activities is a distinctive feature of depressed individuals which may compromise goal re-engagement (Sherdell, Waugh & Gotlib, 2012). Similarly, an increase in depressive symptoms has been linked to situations where individuals have re-engaged in maladaptive responses (Wrosch et al., 2011). Hopko and Mullane (2008) have reported a higher engagement in unrewarding behaviour as a feature of depression. To date, no study has directly compared clinically depressed and non-depressed individuals' responses to unattainable goals. The next aim of this study compared the goal adjustment capacities (i.e. goal disengagement and goal re-engagement) of clinically depressed and non-depressed controls in their response to unattainable goals.

Furthermore, we know very little about specific psychological processes which may maintain or exacerbate emotional intensity following goal failure (Van Randenborgh, Huffmeier, Lemoult & Joorman, 2010). Maladaptive responses to problematic goal attainment may constitute a heightened risk of depression (Watkins, 2008). Rumination has been identified as one such regulatory process which may compromise goal adjustment. Research has suggested rumination proneness may exacerbate depressive symptoms through impairment of goal adjustment processes (Van Randenborgh et al., 2010; Watkins, 2008). However, goal self-regulatory research has not clearly established additional cognitive factors that may predispose individuals to engage in such maladaptive rumination, in responding to an unattainable goal.

There remain important unanswered questions. Specifically, what factors determine the regulation of unattainable goals and why do people remain attached to goals that are unattainable and fail to engage with alternate goals (Wrosch, et al., 2011). Watkins (2008) has focused on the area of problematic goal attainment and suggested that metacognitive ruminative beliefs held by depressive ruminators will elicit unconstructive rumination; leading to inflexible goal regulation and reduced cognitive resources to resolve problematic goal attainment. These beliefs may predispose an individual to focus on their emotions (i.e. self-referent information) as opposed to problem solving (i.e. goal-directed action).

Contrastingly, Martin and Tesser's (1996) Goal Progress Theory posits an adaptive function to rumination. The theory posits that unattained goals initiate recurrent thinking about the goal to facilitate effective self-regulation. However, secondary appraisals of the experience of rumination (i.e. metacognitions) may

mediate the generation of negative affect and perceived maladaptiveness of this response (Martin & Tesser, 2006; Papageorgiou & Wells, 2009; Watkins, 2008). Research in metacognition has reported that rumination can be maintained and become maladaptive if an individual interprets it negatively (i.e. negative metacognitive beliefs; Wells, Fisher, Myers, Wheatley, Patel, & Brewin, 2009) and makes attempts to suppress rumination. Therefore, in response to problematic goal attainment such beliefs may alter the adaptive function of rumination to facilitate resolution of goal-based discrepancies.

It has been suggested that rumination is initially adopted with the intention of resolving goal-based or meaning-related discrepancies (Martin & Tesser, 2006). This may prolong individuals difficulties encountered in adjusting to an unattainable goal where metacognitive ruminative beliefs are strong. Positive metacognitive ruminative beliefs may lead individuals to engage in excessive and unconstructive rumination, in response to a stressor (e.g. disengaging from an unattainable goal), limiting regulatory abilities (e.g. problem solving or active coping; Papageorgiou & Wells, 2001b; Watkins, 2008). In addition, metacognitive ruminative beliefs have been found to mediate the relationship between rumination and depression (Papageorgiou & Wells, 2003). Research has not directly studied the relationship between goal adjustment, metacognitive ruminative beliefs and depression, despite these processes being suggested as vulnerabilities to depression. The final study aim is to examine whether the relationship between goal adjustment processes and depression is mediated through metacognitive ruminative beliefs.

In summary, the hypotheses for the study aims are, compared to controls, depressed individuals will (i) generate more avoidance goals and (ii) less approach

goals (iii) report lower expectancies for future approach goal outcomes and (iv) higher expectancies for avoidance goal outcomes happening to themselves (v) report lower goal disengagement and (vi) lower goal re-engagement in response to an unattainable goal. Finally, it was predicted that in the depressed sample negative and positive ruminative meta-beliefs would mediate the (vii) the relationship between goal disengagement processes and depression and the (viii) relationship between goal re-engagement processes and depression

Method

Participant

Clinical participants were recruited from two National Health Service (NHS), Improving Access to Psychological Service (IAPT) sites in the North West. Participants were accessing a low intensity cognitive behavioural therapy treatment, delivering goal-based approaches to depression (e.g. behavioural activation). Control participants were recruited from the community within the same region. The total sample (N=92) comprised 57 females and 35 males. The depressed and control group did not differ significantly on the proportion of men and women (X^2 =101, df=2, >0.05) or age (t(91)=-.77, p>0.05)

Depressed group Forty-two participants (25 women, 17 men; age 16-67 years, M=38.50, SD= 13.73) met study criteria for depression. Pre-test screening for depression was conducted. Inclusion criteria required: scores in the symptomatic range on a measure of depression, The Personal Health Questionnaire (PHQ-9: scores of 9 or above), participants had to be aged 16 years or older and at the assessment stage of their therapy. Exclusion criteria for the study were consistent with DSM-IV criteria and included: substance abuse, psychotic symptoms, bi-polar

disorder, head injury, and mood disorder due to a general medical condition. Participants were also excluded if they reported current suicidal ideation with plans, actions and no protective factors. Due to the present research task requirements participants were also excluded if they were not fluent in English.

Control Group Pre-test screening was conducted. No participants scored within the symptomatic range or indicated that they were accessing services at the time of testing. The control group included 51 participants (32 female, 19 male; age 21-61, *M*=36.31, *SD*=13.40). Inclusion in the control group required PHQ-9 scores in the asymptomatic range (scores < 9; *M*=1.83, *SD*=2.17, *range*=0-8), aged 16 or over and participants were not currently receiving support for mental health difficulties, including medication or psychotherapy.

Power calculations

Power calculations were conducted prior to undertaking statistical analysis. As there has been little research examining the study variables in relation to depression power calculations were based on Cohen's (1988) recommendations for Behavioural Sciences Research. Therefore, mixed model ANOVA analyses required a total sample size of 46 participants in order to detect a medium effect (*F* = .25) at a power level of .80 and an alpha level of 0.05. The t-test statistical analyses required 64 participants in each group in order to detect medium effects (*d* = 0.5), at a power level of 0.80 and at an alpha level of 0.05. In addition, effect sizes presented in the analyses are also reported in the results.

Materials

Personal Health Questionnaire PHQ-9 (Kroenke, Spitzer & Williams, 2001). The PHQ-9 is a nine item self-report measure used to assess the presence and

severity of depressive symptoms. Participants rate how often each of the nine depressive symptoms has bothered them during the previous 2 weeks, from 0 (not at all) to 3 (nearly every day). The measure has good validity and reliability (Martin, Rief, Klaiberg, Braehler, 2006). In the present study the reliability alpha was α=.90.

Goals Task (Dickson & Macleod, 2004). Two Independent goal measures were used to assess number of self-generated idiographic approach and avoidance goals. Participants are instructed to list goals which would typically characterise them at some time in the future (e.g. next week, next month, in a few years), using short single statements. Goals are described as future experiences that they will be trying to accomplish (e.g. 'to take a summer holiday with friends') or to avoid (e.g. 'to not upset my family'). Prompts were provided to elicit approach goals, 'In the future it will be important for me to' and avoidance goals 'In the future it will be important for me to avoid.' To control for variations in task effort, participants are given 90 seconds to write down as many personal goals that come to mind which may characterise them in each goal condition (approach and avoidance).[2] The order of the approach and avoidance goal measures were counterbalanced in the goal task.

Goal expectancy (Dickson & Macleod, 2004). This measure was used to assess individuals' approach and avoidance goal expectancy. Expectancy judgements for goal outcome were rated from 1 (not at all likely to happen) to 9 (extremely likely

[2] All goals were coded for approach and avoidance to ensure participants followed the instructions in each condition. These were confirmed by an independent rater in coding goals in each category. There was complete agreement between the author and the independent rater. Sixteen avoidance goals were listed in the approach goal condition and three approach goals listed in the avoidance condition. These goals were excluded from the count. They accounted for less than 1% of all goals and their omission did not affect the results.

to happen). In the avoidance condition, a higher score corresponded to greater likelihood of failing to avoid the unwanted outcome.

Goal Adjustment Scale (GAS; Wrosch, Scheier, Miller, Schulz, & Carver, 2003) The GAS measures individual differences in general goal disengagement and goal re-engagement in response to unattainable goals. This is a 10-item measure, four items measure goal disengagement and six items measure goal re-engagement. Respondents rate the extent of agreement with each item on a five point likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate greater ability to disengage (GAS-D) from unattainable goals or to reengage in alternate new goals (GAS-R). To measure general goal disengagement and goal re-engagement participants are asked to rate their agreement with each of the items in response to the following statement 'During their lives people cannot always attain what they want and sometimes are forced to stop pursuing the goals they have set. We are interested in understanding how you usually react to this when this happens to you?'

Disengagement items measure abilities to reduce effort and commitment towards an unattainable goal. The four disengagement items include two items measuring reduction of effort and two items measuring relinquishment of commitment. The six goal re-engagement items include two items measuring individual tendencies to identify new goals, two items measuring tendencies to commit to new goals and two items measuring tendencies to begin active pursuit of new goals, when unattainable goals are encountered. The items are summed to give a total goal disengagement and goal re-engagement score. The measure has good reliability and validity; GAS-D (α=84) and GAS-R (α=86) (Wrosch, Scheier, Miller, et

al., 2003). In the present study the reliability for goal disengagement was α=.66 and for goal re-engagement it was α=.89.

Positive Metacognitive Beliefs About Rumination (PBRS; Papageorgiou & Wells 2001). The PBRS is a 9-item scale assessing an individual's positive metacognitive beliefs about rumination. Respondents rate the extent to which they agree with each of the questions on a four point likert scale ranging from 1 (do not agree) to 4 (agree very much). The measure has good reliability (α = .89; Roelofs, Huibers, Peeters, Arntz &van Os, 2010). The measure demonstrated good reliability in the present study α=.94.

The Negative Beliefs about Rumination Scale (NBRS; Papageorgiou & Wells 2001). The NBRS is a 13-item measure assessing negative beliefs about rumination and includes two sub scales. The first sub scale (NBRS1) assesses beliefs about the uncontrollability and harmfulness of rumination. The second sub scale (NBRS2) measures beliefs about the interpersonal and social consequences of rumination. Respondents rate the extent of agreement with each item on a 4-point likert scale, ranging from 1 (do not agree) to 4 (agree very much). The measure has good reliability (α=.80) (Luminet 2004; Papageorgiou & Wells 2001). The measure was reliable in this study (NBRS1; α=.80) and (NBRS2; α=.84)

Goal importance (Dickson & Macleod, 2004) Goal importance was also rated from 1 (not very important) to 9 (extremely important). There was no significant difference between depressed and control participants on the importance they attached to their approach goals (U=838.500, N1=51, N2=42, p>.05, two tailed) or their avoidance goals (U=1037.000, N1=51, N2=42, p>.05, two tailed). Therefore the

groups did not differ on the subjective importance of the approach and avoidance goals.

Procedure

Depressed group Ethical approval for this study was obtained through the Integrated Research Application System (IRAS) and Research and Development teams from the relevant NHS Trusts. University sponsorship approval was also obtained. The initial recruitment procedure for the study was amended owing to poor recruitment (See appendix A, alternate recruitment procedure). Clinical participants were recruited directly from two IAPT clinics in which the researcher was based. Service users meeting study criteria were invited to participate by NHS staff undertaking therapy sessions. During the therapy session service users were provided with a participant information sheet. Those who expressed an interest were given the opportunity to further discuss with the researcher following their therapy session and if consented completed questionnaires at this point. Alternatively, the researcher agreed a convenient time to complete the measures at the clinic around their next therapy session.

Control group A community sample (e.g. church groups and sports centre) were recruited in the same geographical region. The study was advertised by flyers and the circulation of participant information sheets within the community. Participants contacted the researcher by email if they were interested in participating in the study. Following consent a convenient arrangement was made to

complete the measures. Participants were offered the choice between testing at a university location or at home[3]. University policy for home visits was adhered to.

Prior to testing participants were informed that testing would not exceed 45 minutes and that it involved one appointment. Consent was obtained from each participant individually prior to undertaking the measures. At the outset of testing, participants completed an abbreviated form of the FAS task (Lezak, 1976) to familiarise participants with the goal task and to assess written fluency. Participants were instructed to write down as many words as possible beginning with the letter 'F' within 90 seconds. There was no significant group difference on number of words generated**,** $t(91)=1.83$, $p>.05$, which suggests that the groups were equivalent in written fluency. Both groups then completed the Goal Task, ratings on Goal Expectancy, Goal Importance and depression measures consecutively. The depressed group additionally completed two metacognitive rumination measures.

Data analysis

First data were screened to check correct data entry and missing values. Next, parametric assumptions were examined for t-tests, ANOVAs, and regression analyses (mediational analyses). Data screening revealed that approach expectancy was negatively skewed across both groups (zs>3.29; Field, 2009). However, on closer inspection of participants' approach expectancy scores, two extreme outliers were identified in the depressed group (zs > 3.29) and one extreme outlier in the control group (z > 3.29). In accordance with Tabachnick and Fidell (1996), these univariate outliers were assigned a raw score on approach expectancy that was one unit lower

[3] Three participants were tested at a university location the remainder were tested at a home location.

than the next lowest score. Following this procedure, the approach expectancy variable was found to be normally distributed (zs < 2.58; Field, 2009). Parametric assumptions were met for all the main study variables (See Appendix B, for full details regarding data screening and testing parametric assumptions.

Separate mixed design ANOVAs were used to compare groups (depressed vs controls) on number of approach and avoidance goals, and mean approach and avoidance goal expectancies. Subsequent, t-tests were used to examine significant interactions more closely. To investigate whether groups differed on mean goal disengagement and goal re-engagement independent t-tests were conducted. Groups were also compared on the goal disengagement subscales (i.e. effort and commitment) and goal re-engagement subscales (i.e. identify new goals, begin to pursue and commitment towards new goals). Adjusted bonferroni corrections were applied to t-tests to compare group differences using an alpha level of 0.025 (Clark-Carter, 2010).

Finally, in accordance with Preacher and Hayes (2008) two separate meditational analyses were conducted to examine the mediation of goal re-engagement and goal disengagement processes on depression through positive and negative metacognitive beliefs. Meditational analyses were conducted using the Process programme on SPSS (Preacher & Hayes, 2008). In the analyses, the independent variable was goal adjustment, the mediator was metacognitive ruminative beliefs and the dependent variable was depression. Mediation was tested for using bootstrapping procedures, based on 10,000 repetitions, and confidence intervals were used to interpret significant meditational results. Data were checked for normally distributed residuals and homoscedasticity (See appendix B, regarding

parametric assumptions). The regression residuals were normally distributed and homoscedasticity was within the acceptable criterion (Field, 2009).

Results

The clinical characteristics of the depressed group are reported in Table 1. Depressed participants ranged in their previous experience of depression, therapy and whether they were currently taking medication. The majority of participants within the depressed group reported depressive symptoms in the moderate to severe range.

Table 1. Clinical characteristics of depressed group (PHQ-9 range, previous therapy, type of therapy, previous episodes of depression and medication)

Clinical Characteristics	**Depressed group (*N*=42)**	
	Number	%
PHQ-9		
Mild	7	17%
Moderate	17	41%
Moderate to Severe	15	36%
Severe	3	7%
Previous therapy		
None	25	60%
One	14	33%
Two	3	7%
Type of therapy		
No previous therapy	25	60%
Counselling	12	28%
Cognitive Behavioural Therapy (CBT)	2	5%
Counselling and CBT separately	1	2%
Counselling on two occasions	2	5%

Previous episodes of depression		
None	20	48%
One	11	26%
Two	9	22%
Three	1	2%
Four	1	2%
Medication		
Yes	7	17%
No	35	83%

Number of goals (approach vs avoidance) and group (depressed vs control)

Table 2 presents descriptive statistics for number of goals listed and mean goal ratings for each group (depressed vs control) in each goal condition (approach vs avoidance).

Table 2. Group means and standard deviations (SD) for number of goals and ratings by group (depressed vs control) and condition (approach vs avoidance)

Group	Number of goals		Expectancy	
	Approach	Avoidance	Approach	Avoidance
Depressed	5.21(2.34)	4.92(1.99)	6.23(1.37)	5.49(2.00)
Control	7.18 (2.71)	4.24(2.12)	7.32(1.10)	3.63(1.93)

First a mixed-design ANOVA was conducted with group (depressed vs control) as a between-subjects factor and goal type (approach vs avoidance) as a within-subjects factor on number of goals. Results showed no significant main effect

for group (F (1,91)=2.33, p>.05, η_p^2=.03) Therefore, overall groups did not differ on self-generated goals. However, results showed a significant main effect of goal type (approach vs avoidance) with participants listing more approach goals than avoidance goals (F(1,91)=42.51, p<0.05, η_p^2=32). This main effect was further qualified by the predicted significant interaction between goal type and group (F(1,91)=28.79, p<.05 η_p^2=.24).

As predicted, subsequent independent t-tests showed that depressed participants generated significantly fewer approach goals (M=5.2, SE=.36) than did control participants (M=7.18, SE=.38), (t(91)=3.68, p<.025, d=.77), as can be seen in Table 2**.** Counter to predictions there was no significant difference between groups on number of avoidance goals generated by depressed (M=4.92, SE=.31) and control participants (M=4.23, SE=.30), (t(91)=-1.61, p>.025, d=-.34). In summary, compared to controls, depressed participants were characterised by fewer approach goals, but not more avoidance goals.

Goal expectancy (approach and avoidance expectancy) and group

A second mixed-design ANOVA was conducted with group (depressed vs control) as a between-subjects factor and goal expectancy (approach expectancy vs avoidance expectancy) as a within-subjects factor on mean goal expectancy. Results showed no main effect for group (F(1,91)=2.34, p>.05, η_p^2=.0.03). However, results did show a significant main effect of goal expectancy, (F(1,91)=94.61, p<.05, η_p^2 =.51) which revealed that participants judged their desired approach goal outcomes to be more likely to occur than their undesired, to-be-avoided goal outcomes. The main effect was further qualified by the predicted interaction between group and goal

expectancy ($F(1,91)=41.51$, $p<.05$, $\eta_p^2 = .31$).

As predicted, subsequent independent t-tests showed that depressed participants judged their (desirable) approach goal outcomes ($M=6.24$, $SE=.21$) as significantly less likely to happen ($t(91)=4.26$, $p<.025$, $d=.90$) compared to control participants ($M=7.32$, $SE=.15$). As can be seen in Table 2, depressed participants judged their (undesired) to-be avoided goal outcomes ($M=5.49$, $SE=.31$) as significantly more likely ($t(91)=-4.53$, $p<.025$, $d=.95$) to occur than did controls ($M=3.63$, $SE=.27$). Thus depressed participants were more pessimistic than controls about the likelihood of achieving (desirable) approach goals and judged (undesirable) avoidance goals as more likely to occur.

Goal disengagement and re-engagement

Two t-tests were conducted to compare depressed and controls on goal disengagement and goal re-engagement. Counter to prediction, depressed participants reported significantly greater goal disengagement from unattainable goals ($M=11.07$, $SE=.49$), than did control participants ($M=8.94$, $SE=.36$); ($t(91)=-3.56$, $p<.025$, $d=.75$). However, as predicted depressed participants reported lower goal re-engagement ($M=17.40$, $SE=.73$) than did controls ($M=21.57$, $SE=3.93$), ($t(91)=4.64$, $p<.025$, $d=.97$).

Goal disengagement and re-engagement subscales

To more closely examine goal disengagement and re-engagement, groups (depressed vs controls) were compared on goal disengagement subscales (i.e. effort and commitment) and goal re-engagement subscales (i.e. identify, begin to pursue and commitment). As can be seen in Table 3, there was no significant difference found between depressed and controls on either goal effort ($t(91)=-.06$, $p>.025$,

d=0.01) or goal commitment (*t*(91)=.931, *p*>.025, *d*=0.20). Compared to controls, depressed participants reported significantly lower goal re-engagement on each of the three subscales: identify new goals (*t*(91)=3.84, *p*<.025, *d*=0.81), commitment to new goals (*t*(91)=3.52, *p*<.025, *d*=0.74), begin active pursuit of new goals (*t*(91)=5.06, *p*<.025, *d*=1.06). In summary, compared to controls, depressed participants reported lower levels of goal re-engagement overall and on each of the three goal re-engagement subscales. However, depressed participants did report overall greater goal disengagement but there was no significant difference between the two groups on the goal disengagement subscales.

Table 3. Comparison of group means and standard errors (SE) on goal disengagement and goal re-engagement subscales

	Depressed		**Controls**	
	M	(SE)	M	(SE)
Goal disengagement	11.07	(.49)	8.94	(.36)
(i) Reduce effort	5.67	(.28)	5.65	(.22)
(ii) Relinquish commitment	5.40	(.30)	5.76	(.25)
Goal re-engagement	17.40	(.73)	21.57	(.55)
(i) Commitment to new goals	5.57	(.27)	6.80	(.22)
(ii) Identify new goals	6.05	(1.74)	7.33	(.21)
(iii) Begin active pursuit of new goals	5.79	(.27)	7.43	(.19)

Mediational analysis of goal adjustment, metacognitive beliefs and depression

Using Preacher & Hayes' (2008) Process Programme in SPSS separate mediational analyses were conducted to investigate whether positive and negative metacognitive ruminative beliefs, respectively, mediated a relationship between goal re-engagement (IV) and depression (DV) and goal disengagement (IV) and depression (DV). Mediational analyses were based on the depressed sample and are presented below. The mediational analysis focused on depressed participants for primarily two main reasons. First, the measure specifically asks participants about their beliefs regarding rumination and depressive feelings. Second, the metacognitive model of depression (Wells et al., 2009) posits that these beliefs are implicated in the onset and maintenance of depression.

Mediation of goal re-engagement on depression through negative and positive metacognitive beliefs

First, simple regressions showed that goal re-engagement did not significantly predict negative metacognitive ruminative beliefs, B=-.37, t(41)=-1.62, p>.05 but negative metacognitive ruminative beliefs did significantly predict depression, B=.21, t(41)=2.18, p<.05. Simple regressions also showed that goal re-engagement significantly predicted depression, B=.28, t(41)=2.07, p<.05 . Also, as predicted meditational analyses showed negative metacognitive beliefs had a significant indirect effect and partially mediated the relationship between goal re-engagement and depression, B=-0.07, SE=.05, (CI range: -.21,-.02). Meditational results also showed a significant direct relationship between goal re-engagement and depression, B=.28, SE=.05, t(41)=2.07, p<.05.

Next, simple regressions showed that goal re-engagement did not significantly predict positive metacognitive beliefs, *B*=0.06, *t*(41)=.25, *p*>.05 and positive metacognitive ruminative beliefs did not significantly predict depression, *B*=-.08, *t*(41)=.84, *p*>.05. Simple regressions did show that goal re-engagement significantly predicted depression, *B*= .28, *t*(41) = 2.07, *p*<0.05. Counter to study hypotheses, mediational analysis showed that positive metacognitive beliefs did not significantly mediate an indirect relationship between goal re-engagement and depression, *B*=-0.00, *SE*=.03, (CI range: -.10, .02).

Mediation of goal disengagement on depression through positive and negative metacognitive ruminative beliefs

First, Simple regressions showed that goal disengagement did not significantly predict negative metacognitive ruminative beliefs, *B*=-.56, *t*(41)=-1.67, *p*>.05 and negative metacognitive beliefs did not predict depression in this analysis, *B*=.13, *t*(41)=1.31, *p*>.05. Simple regressions also showed that goal disengagement did not significantly predict depression, *B*=-.20, *t*(41)=-.98, *p*>.05 . Counter to study hypotheses, mediational analysis showed that negative metacognitive beliefs did not significantly mediate an indirect relationship between goal disengagement and depression, *B*=-.07 *SE*=.07, (CI range: -.29,.01). Also, there was no significant direct effect between goal disengagement and depression, *B*=-.20, *SE*=.20, *t*(41)=-.98, *p*>.05.

Next, Simple regressions showed that goal disengagement did not significantly predict positive metacognitive ruminative beliefs, *B*=-.18, *t*(41)=-52, *p*>.05 and positive metacognitive ruminative beliefs did not significantly predict depression in this analysis, *B*=-.05, *t*(41)=-.52, *p*>.05. Simple regressions also showed

that goal disengagement did not significantly predict depression, *B*= -.20, *t*(41) = -.98, *p*>.05. Counter to study hypotheses mediational analysis showed that negative metacognitive beliefs did not significantly mediate an indirect relationship between goal disengagement and depression, *B*=.01, *SE*=.04, (*CI range*: -.03, .14). Also, there was no significant direct effect between goal disengagement and depression, *B*=-.20, *SE*=.20, *t*(41)=-.98, *p*>.05.

Discussion

This study aimed to examine specific goal processes and ruminative metacognitive beliefs, in relation to depression. As hypothesised, depressed participants reported significantly fewer approach goals than controls but the groups did not differ on number of avoidance goals. As predicted, depressed participants reported that future approach goals were less likely to happen and that avoidance goals were more likely to happen than did controls. Compared to controls, depressed participants reported lower goal re-engagement but counter to prediction reported higher disengagement from an unattainable goal. Finally, negative metacognitive beliefs partially mediated the relationship between goal re-engagement and depression but negative and positive metacognitive beliefs did not significantly mediate any other relationships between goal adjustment and depression.

The findings offer partial support for Fowles' (1994) motivational view of depression as being characterised by low approach motivation. The findings are also consistent with previous research which depicts depression by impaired approach goal motivation (McFarland et al., 2006; Spielberg et al., 2011). As such, the findings suggest that depressed individuals have greater difficulty generating rewarding and

desirable goal outcomes to pursue. This apparent deficit may limit opportunities for reward and positive reinforcement in goal pursuit, thus serving to maintain depression. The study did not find that depressed individuals were characterised by a heightened focus on avoidance goal pursuits, which lends some support to Bijttebier et al's. (2009) view that avoidance motivation may be a 'state-dependent characteristic' rather than a 'true vulnerability marker' to depression. Also, past research findings on avoidance motivation in depression has been somewhat mixed (Spielberg et al., 2011).

It has been suggested that biased cognitive appraisals of goals, such as goal expectancy, may impair adaptive self-regulation and is implicated in depression (Johnson et al., 2010). Consistent with Dickson et al's. (2011) findings, pessimistic goal expectancies were identified as a significant feature of depressed participants. Therefore, lower expectancies of achieving desirable (approach goals) may reduce the effort an individual mobilises towards that goal, reducing their experience of positive affect and reward, whilst increasing feelings of depression and hopelessness. In addition, depressed individuals were also more pessimistic in their expectations of aversive to-be-avoided outcomes occurring. Therefore, an increased expectancy on 'bad' things happening may be implicated in the onset and development of depression. For example, this increased expectancy may strengthen the salience of avoidance goals. Consequently, goal behaviour may be occupied by persistent attempts to avoid aversive outcomes thereby weakening approach pathways; limiting access to alternate potentially rewarding goals. Prior research has linked higher expectancies of to-be avoided outcomes with heightened levels of attentional control to prevent negative outcomes and increased negative affect

(Grawe, 2007; Wollburg et al., 2010). Although past research has indicated that pessimistic subjective probability judgements for future hypothetical outcomes have been implicated in the onset and maintenance of depression (Abramson et al., 1989; Abramson et al., 1978), the present study extends this literature to subjective expectancies for future orientated idiographic goals. It could also be argued that idiographic goals are more personally meaningful than hypothetical events and possess greater ecological validity.

Counter to predictions, depressed participants reported significantly greater disengagement from unattainable goals than controls. A number of explanations may help understand this finding. For instance, the finding may suggest that depressed individuals are more sensitised to potential goal failure and therefore more readily able to identify and disengage from an unattainable goal. However, this would be inconsistent with the Self-Regulatory Preservation Theory and the hypothesised goal adjustment profiles which have suggested that impaired disengagement from unattainable goals is a feature of depression (Miller & Wrosch, 2007; Pyszczynski & Greenberg, 1987; Wrosch & Miller, 2007). Alternatively, previous research has suggested that there may be instances when disengagement represents a maladaptive response, for example, a lack of persistence and premature disengagement from goal pursuit (Miller & Wrosch, 2007; Wrosch et al., 2003). Therefore, the higher goal disengagement reported by depressed individuals in this present study may be indicative of this feature.

While the present findings suggest that depressed individuals more readily disengage they also appear to struggle to re-engage in alternate new goals. This may leave an individual focused on the failure to attain a personally meaningful goal.

Repeatedly experiencing difficulties in re-engaging with alternate goals, following problematic goal attainment, may exacerbate a sense of failure to attain a personally meaningful goal and hinder the pursuit of new alternate goals thus increasing vulnerability to depression. The lower goal re-engagement reported by depressed individuals is consistent with Van den Elzen & Macleod's (2006) suggestion that individuals who have difficulty developing new plans would be at a greater risk of depression. Difficulty re-engaging in goal pursuit may represent a self-regulatory vulnerability marker for depression.

Finally, as predicted negative metacognitive ruminative beliefs partially mediated the relationship between goal re-engagement and depression. This finding may suggest that individuals who are predisposed to negatively appraise ruminative thought, attempt to suppress ruminative thought or interpret it as a sign of danger (Wells et al., 2009). Therefore, in responding to problematic goal attainment such beliefs may prolong an individual's ruminative thought and reduce cognitive resources necessary for goal re-engagement. This finding lends support and extends Van den Elzen and Macleod's (2006) view that a reduced ability to re-engage in rewarding activity subsequent to goal disengagement may place an individual at risk of depression.

Counter to study hypotheses metacognitive ruminative beliefs did not significantly mediate any other relationships between goal adjustment and depression. Overall, the findings do not provide support for Watkin's (2008) view that metacognitive beliefs impair the self-regulation of goals nor the view that these beliefs mediate the generation of affect related to goal pursuit and prolong problematic goal attainment (Martin & Tesser, 2006). In addition, the simple

regressions undertaken within the meditational analyses highlighted an inconsistent finding in the depressed group, that goal re-engagement positively predicted depressive symptoms. This is inconsistent with the proposed theoretical function of goal re-engagement. Therefore, these study findings may suggest that depressed individuals' ability to re-engage in alternate goals is not reduced but their ability to identify and engage in rewarding goals is reduced. This is consistent with Sherdell et al's. (2012) view which characterises depression by engagement in passive unrewarding behaviour.

Clinical implications

Potential clinical implications for the treatment of depression can be drawn from study findings. The finding that depressed individuals were characterised by impaired approach goal motivation, would lend support to Wollburg et al's. (2010) argument that therapeutic efforts should focus on activating the approach system to improve treatment outcomes. This may involve assisting an individual to identify pathways to effective goal pursuit focused on rewarding and desirable outcomes. The pessimistic goal expectancies, which characterised depressed individuals, also highlights the need for therapeutic approaches to focus on restructuring negative thinking relating to goals. In addition, it is possible that strengthening approach expectancies may weaken the focus on avoidance expectancies. Depressed individuals lower goal re-engagement capacities suggest that therapy should focus on assisting individuals to identify new goals and pathways towards re-engaging with alternate goals (Sherdell et al., 2010). Activating goal re-engagement among depressed individuals may attenuate their depression (Van den Elzen & Macleod, 2006). These clinical suggestions are consistent with the use of behavioural

activation interventions in depression (Dimidjian, Barrera & Martell, 2011). Finally, goal focused clinical approaches should also note that personal goals are situated within a social context. Therefore, clinicians should attempt to understand goals within personal, social and economic circumstances e.g. bereavement and unemployment.

Limitations and future research

There are a number of limitations in the present study. The cross sectional study design was a limitation, therefore causality cannot be assumed. Also, the cross sectional design restricted the opportunity to examine the mediating influence of metacognitive ruminative beliefs. Although the sample size was slightly underpowered, the predicted significant effects did show quite large effect sizes. Another limitation of the study, relates to the GAS (Wrosch et al., 2003). Participants responded retrospectively and their responses were not in relation to specific idiographic goals. Therefore, this may have biased participant's self-reports. Without specific goals to contextualise the nature of goal adjustment it is uncertain whether respondents' answers reflected an adaptive response. The non-significant mediations for metacognitive ruminative beliefs may be related to the narrow focus of the goal adjustment measure. It may also be the case that the focus of the metacognitive ruminative measure does not relate well to the constructs of goal adjustment. Wrosch et al's. (2003) measure excludes constructs specific to affective responses or broader difficulties associated to goal disengagement and goal re-engagement. It should also be acknowledged that the indirect meditational effect of negative metacognitive ruminative beliefs on the relationship between goal re-engagement and depression was modest and should be interpreted with caution.

Future research would benefit from longitudinal research using experience-sampling methods (i.e. daily diary method). This approach involves participants recording at various time points their experience in real time and can identify relationships between variables over a period of time. An experience sampling approach may be a suitable method to capture information regarding an individual's self-regulation of unattainable goals.

In conclusion, the study has demonstrated a number of key findings which have elucidated distinctive features of goal motivation and goal self-regulatory processes in relation to clinically depressed individuals. Counter, to prediction, the metacognitive ruminative beliefs for the most part did not seem to play a role in the relationship between goal adjustment and depression. However, the findings did suggest that depression is marked by a blunted approach goal motivation and pessimistic goal expectancies i.e. low expectancies of desirable outcomes and high expectancies of undesirable outcomes. In addition, the findings revealed that depression was both characterised by heightened goal disengagement and reduced goal re-engagement. These combined goal processes of goal orientation, goal expectancies, and goal adjustment are apt to reinforce and maintain a cycle of depression and highlight the importance of understanding the nature of depression from a goal motivation and goal regulation perspective. Future research studying both goal motivation and goal self-regulation is integral to the development of more effective goal based interventions for depression.

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Appendices

Appendix A

Appendix A

Alternate recruitment procedure

The study recruitment procedure was amended during the study due to poor recruitment. The originally intended recruitment procedure involved staff inviting service users during a telephone assessment with the IAPT service. NHS staff invited service users to participate in the study and sent an information sheet outlining the nature of the research. Interested participants were also asked to provide verbal consent to be contacted by the researcher to discuss participation. The researcher contacted participants and if participants wished to participate the researcher offered a choice to either undertake testing at their home or at the University campus. One participant was recruited through this procedure.

Appendix B

Appendix B

Parametric assumptions and data screening

As previously mentioned prior to conducting statistical analyses, data were screened and examined to ensure that parametric assumptions were met. The values of kurtosis and skewness were then examined. The z scores for skewness and kurtosis were calculated by dividing the respective values by the standard error for each value. As shown in Table 4, the z-scores for all the study variables were found to be within the acceptable criterion (zs < 3.29; Field, 2009) with the exception of approach expectancy.

Data analysis identified that approach expectancy was negatively skewed across both groups (zs>3.29; Field, 2009). Upon closer inspection extreme univariate outliers were identified through box plots and stem and leaf diagrams generated using the EXPLORE option in SPSS, and these extreme outliers had z-scores > 3.29. Specifically, data screening identified two extreme outliers in the depressed group with zs > 3.29 and one extreme outlier in the non-depressed group with a raw score zs >3.29. In accordance with the method recommended by Tabachnick and Fidell (1996), extreme univariate outliers were assigned a raw score on approach expectancy that was one unit lower than the next lowest score.

Table 4. Study variables Z scores for skewness and kurtosis

Measures	Skewness		Kurtosis	
	Depressed	Controls	Depressed	Controls
Positive beliefs about rumination (PBRS)	.06	x	-1.17	-1.38
Negative beliefs about rumination (NBRS)	1.51	x	-1.11	x
Goal Disengagement	.16	1.36	.37	.76
Goal Re-engagement	.00	1.20	1.60	.17
GAS-R Identify new goals	-1.17	-2.38	-1.22	.84
GAS-R Commitment to new goals	.21	-1.86	-1.11	.80
GAS-R Begin active pursuit	-.34	-1.93	-.54	.45
GAS-D Commitment	.05	-1.25	-.56	-.54
GAS-D Effort	.33	.08	-1.25	-1.18
Personal Health Questionnaire (PHQ-9)	1.91	3.93	.57	1.64
Number of approach goals	2.14	1.62	.66	-.04
Number of avoidance goals	1.08	.76	.10	.64
Approach expectancy	-.09	-2.04	.05	-.20
Avoidance expectancy	1.72	2.14	.10	.42
Approach importance	-5.95	-1.02	12.05	.36
Avoidance importance	1.44	2.14	-1.27	13.27

Mixed model ANOVAs

(i) Goal type (approach vs avoidance) and group (depressed vs non-depressed)

In order to conduct mixed model ANOVAs and as previously discussed study variables were checked to ensure that they met parametric assumptions. Table 4, highlights that the z-scores for both approach and avoidance goals were within the acceptable criterion zs<3.29 (Field, 2009). In addition the variables were checked for normally distributed residuals. The standardised residuals for approach goals ranged from -1.57 to 2.83 and for avoidance goals ranged from -2.18 to 2.62. Cook's distances were also examined, approach goals ranged from .00 to .09 and avoidance goals ranged between .00 to .08. Therefore, the standardised residuals suggest that a few individuals' scores exceeded the acceptable criterion of 2.50 (Field, 2009). However, all Cook's distances were less than 1, which suggests these cases did not have a significant influence (Field, 2009). Mauchly's test of sphericity was not considered, as this present study only had two repeated measures conditions and it is only possible to run this test when you have three or more repeated measures conditions. Levene's test of homogeneity of variance was conducted to test that the variances in different groups were equal (i.e. the difference between the variances is zero). A non-significant equality of variance was reported for both approach goals (F(1,91)=.828, p>.05) and avoidance (F(1,91)=.125, p>.05) which showed that the assumption of homogeneity of variance was not violated i.e. that is the variances were not significantly different.

(**ii) Goal expectancy (approach vs avoidance) and group (depressed vs non depressed)**

Again the z-scores for goal expectancy were within the acceptable criterion all zs<3.29 (Field, 2009). The data was also checked for normally distributed residuals. The standardised residuals for approach expectancy ranged from -2.65 to 2.27 and for avoidance expectancy ranged between -2.28 to 2.08. Cook's distances were also checked, approach expectancy ranged between .00 to .09 and avoidance expectancy ranged between .00 and .07. Although the standardised residuals suggested that a few individuals' scores exceeded the acceptable criterion of 2.50 (Field, 2009), however all Cook's distances were less than 1 which suggests that these cases did not have a significant influence (Field, 2009). Levene's test of homogeneity of variance was non-significant for both approach expectancy ($F(1,91)=2.18$, $p>0.05$) and avoidance expectancy ($F(1,91)=.12$, $p>0.05$). Therefore, the variances were not significantly different.

T-tests

(i) Goal type (approach vs avoidance) and group (depressed vs non-depressed)

Two separate independent t-tests were conducted to more closely inspect the significant interaction effect between goal type and group. First approach goals and group were compared. As previously mentioned the z-scores for this variable were within the acceptable criterion. In addition, Levene's homogeneity of variance was non-significant ($p>.05$, Field, 2009), therefore the differences in the group can be assumed to be equal. Second, avoidance goals and group were compared. Again all z-scores were within the acceptable criterion and Levene's homogeneity of variance was non-significant ($p>.05$)

(i) Goal expectancy (approach expectancy and avoidance expectancy) and group (depressed vs non-depressed)

Again two separate t-tests were conducted to more closely examine the interaction effect between goal expectancy and group. First approach expectancy and group were compared. All z-scores were within the acceptable criterion and homogeneity of variance can be assumed (p>.05, Field, 2009). Second avoidance expectancy and group were compared. Again all z-scores were within the acceptable criterion and homogeneity of variance can be assumed (p>.05)

(i) Goal adjustment and group

The z-scores for goal re-engagement and goal disengagement were within the acceptable criterion. In addition, equal variance can be assumed for both goal re-engagement and goal disengagement as reported by Levene's test for homogeneity of variance (p>.05, Field, 2009).

Regression analyses

Prior to conducting meditational analysis, data were checked for normally distributed residuals and homoscedasticity (Field, 2009). In order to check these assumptions, Histograms (Figure, 1), P-Plots (Figure 2) and scatterplots (Figure, 3) were also conducted.

First, goal re-engagement and metacognitive ruminative beliefs were tested as predictors of depression (PHQ-9 total). The regression residuals were normally distributed (Figure 1) and homoscedasticity (Figure 3) was within the acceptable criterion (Field, 2009). All residuals were within the acceptable criterion standardised residuals<2.5, range=-1.67, 1.94 and Cooks distance<1 range=.00, .32 (Field, 2009).

Second, goal disengagement and metacognitive ruminative beliefs were tested as predictors of depression. The regression residuals were normally distributed (see figure X) and homoscedasticity (see figure x) was within the

acceptable criterion (Field, 2005). All residuals were within the acceptable criterion (zresiduals< 2.5; range=-1.54, 2.31) and (Cooks distance<2.5; range=.00, .27) (Field, 2005).

Figure 1. Histogram of standardised residuals (goal re-engagement and metacognitive ruminative beleifs) and PHQ-9 total (dependent variable)

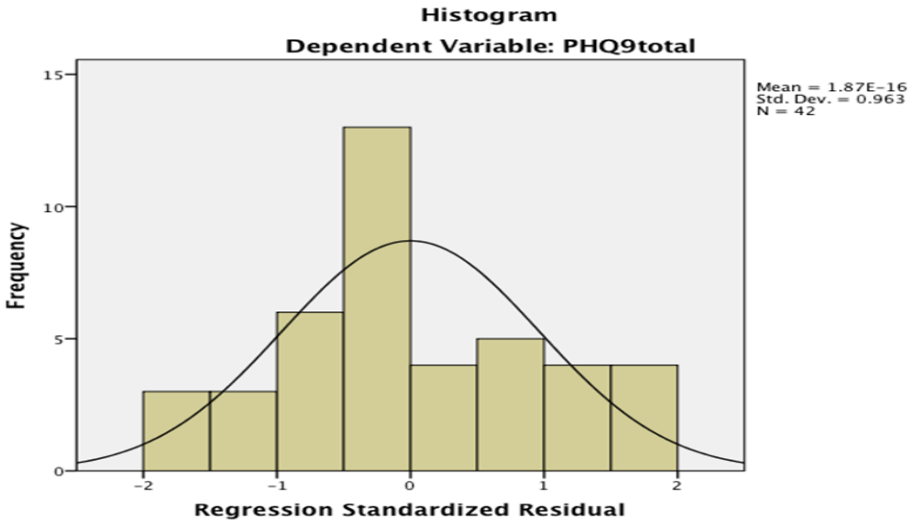


Figure 2. P-P plot of regression standardised residual for dependent PHQ-9 total (dependent variable)

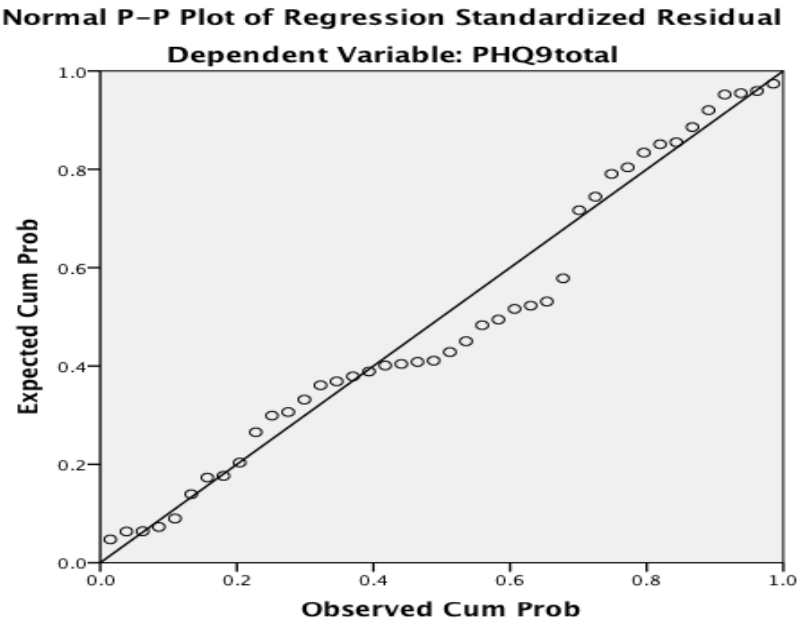


Figure 3. Scatterplot of regression standardised residual, regression standardised predicted value for PHQ-9 total (dependent variable)

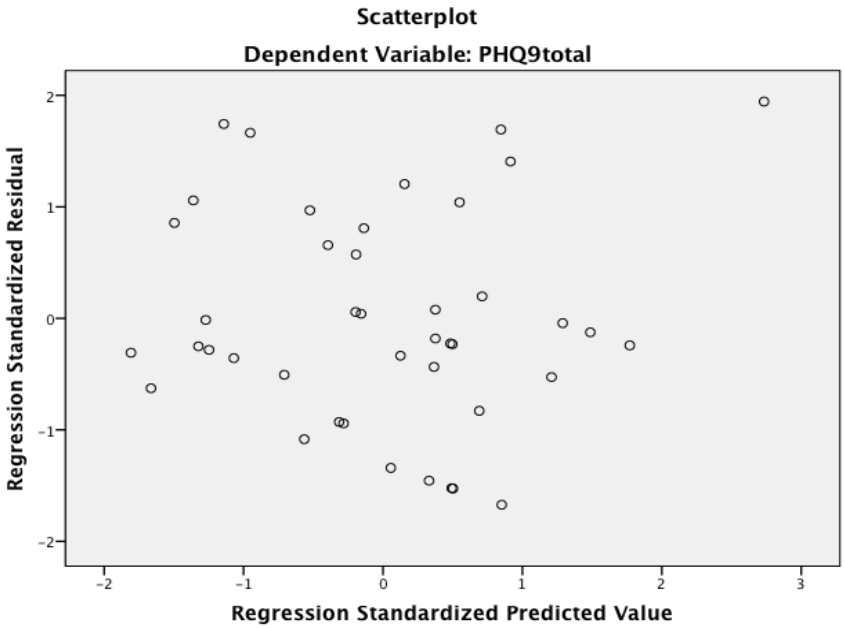


Figure 4. Histogram of standardised residuals (goal disengagement and metacognitive ruminative beliefs) and PHQ-9 total (dependent variable)

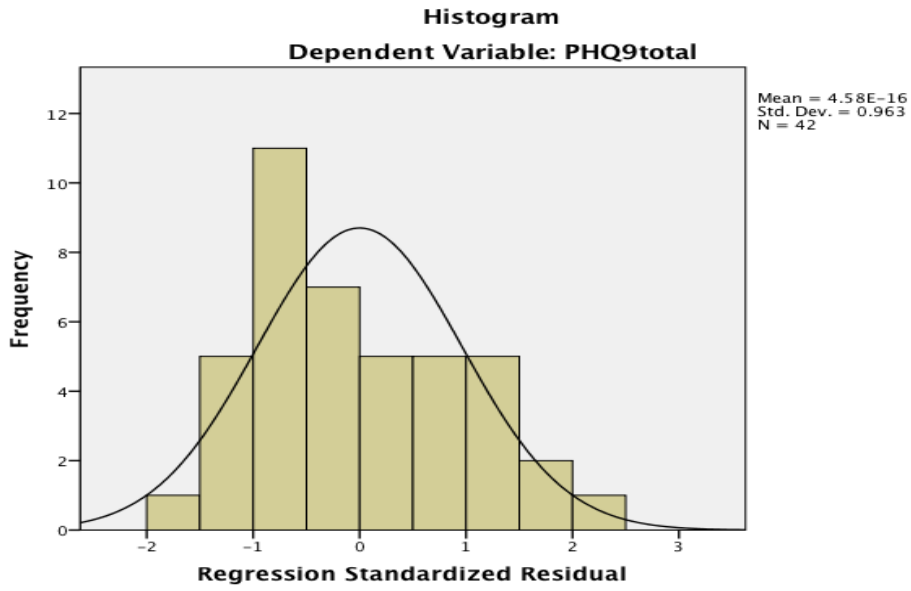


Figure 5. P-P plot of regression standardised residual for dependent PHQ-9 total (dependent variable)

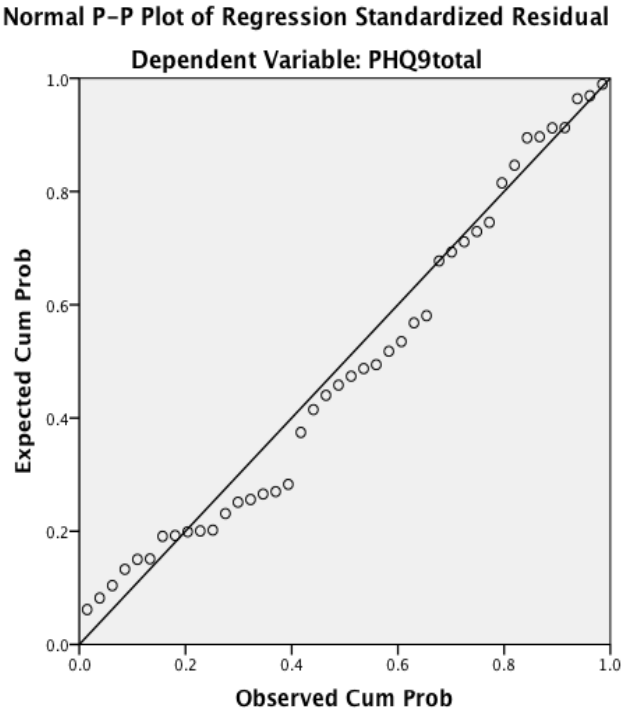
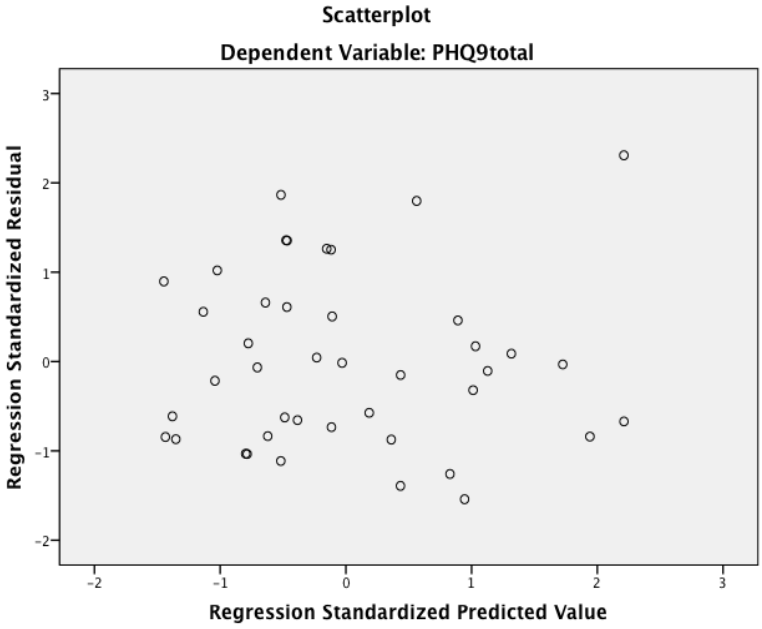


Figure 6. Scatterplot of regression standardised residual, regression standardised predicted value for PHQ-9 total (dependent variable)



Appendix C

Appendix C

Version 2 15/04/13

South Staffordshire and Shropshire Healthcare NHS
NHS Foundation Trust
A Keele University Teaching Trust

UNIVERSITY OF LIVERPOOL

PARTICIPANT CONSENT FORM

Title of Research Project: Goal processes and depression

Researcher: Christian O'Dea

Please initial box

1. I confirm that I have read and have understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my rights or treatment being affected. ☐
3. I understand that, under the Data Protection Act, I can ask for access to the information I provide and I can also request the destruction of that information, if I so wish. ☐
4. I understand that confidentialty would be broken if information I gave suggested that I or someone else was at risk of harm. ☐
5. I agree to take part in the above study. ☐
6. I understand that relevant data collected during the study, may be looked at by individuals from The University of Liverpool, from regulatory authorities or from the NHS Trust, where it is relevant to my taking part in this research. I give permission for these individuals to have access to this data. ☐

_____ _____ _____

Participant Name Date Signature

_____ _____ _____

Researcher Date Signature

Office use only:
Participant no. P

Version 1 15/04/13

South Staffordshire and Shropshire Healthcare NHS
NHS Foundation Trust
A Keele University Teaching Trust

UNIVERSITY OF LIVERPOOL

PARTICIPANT CONSENT FORM

Title of Research Project: Goal profiles and processes

Researcher: Christian O'Dea

Please initial box

1. I confirm that I have read and have understood the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. ☐
3. I understand that, under the Data Protection Act, I can ask for access to the information I provide and I can also request the destruction of that information, if I so wish. ☐
4. I understand that confidentialty would be broken if information I gave suggested that I or someone else was at risk of harm. ☐
5. I agree to take part in the above study. ☐
6. I understand that relevant data collected during the study, may be looked at by individuals from The University of Liverpool. ☐

Participant Name	Date	Signature
Researcher	Date	Signature

Version 5 29/10/13

South Staffordshire and Shropshire Healthcare NHS
NHS Foundation Trust
A Keele University Teaching Trust

UNIVERSITY OF LIVERPOOL

Personal Goals and Goal processes
PARTICIPANT INFORMATION SHEET

Thank you for taking the time to consider participating in this research project. Before you decide whether you would like to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

This information sheet explains the purpose of the study and what will happen if you take part. If there is anything that is not clear or if you would like more information before you make a decision, please ask the researcher.

What is the purpose of the study?

Goal pursuit and goal motivation has been linked to wellbeing and depression. Previous research has highlighted the need for further exploration of goal motivation in depression. Personal goals play a fundamental factor in therapeutic engagement and are key to maintaining long term behaviour.

Understanding goal processes linked to these difficulties may potentially provide a greater understanding of goals and the management of goals within depression leading to the development of more effective clinical approaches to the treatment of these difficulties.

The study aims to explore goal motivation within adults with depression presenting at an NHS primary care talking therapy service. The type of goals individuals pursue and how they think about their goals will be explored.

Why have I been asked to take part?

You have been asked to take part in the study following your referral to a NHS primary care talking therapy service. The NHS service which you have been referred to has agreed to be a recruitment site for this research project.

Do I have to take part?

No. You can decide not to take part in the study. Your participation is entirely voluntary and you can stop taking part at any point without giving a reason. The

results you have given up to the point you decide to withdraw may be used unless you request that they are destroyed. Your decision to take part or not will have no detrimental effect on the therapy or the service you receive from the NHS service.

What would it involve?

Initially you will be invited to provide permission for the researcher (Christian O'Dea) to discuss with you the research and identify presenting problems. This will also be an opportunity to ask any questions relating to the study. If you agree to take part in the study the researcher will arrange a convenient time and place to meet to complete the measures. The researcher will be able to offer the clinic at which you attend sessions, home visits or alternatively you could attend the University of Liverpool to complete the measures with the researcher. The study will involve completing 2 brief timed tasks and 4 short questionnaires. The questionnaires will help identify goals and processes linked to goal management. Participation is expected to take about 45 minutes.

Will my taking part in the study be kept confidential?

Yes. All information you provide will be kept completely confidential. All personal information (e.g. your name and the name of the service) or anything else which might identify you will be removed so that no-one will know who you are. The information that you provide will not be shared with anyone in the service. No names will be used in any reports that are written.

The only exception to confidentiality is if the information that you provide suggests that you or someone else may be at risk of harm. In the extremely rare circumstances when this does happen the researcher will make every effort to discuss this with you first.

If you decide to take part in the free draw (more details below) then your name and contact details will be entered onto a password protected database but this will remain separate from the information you provide.

Are there any benefits to taking part in the research?

As a thank you to you for agreeing to take part you will be given the option to enter into a draw for one of twelve £10 gift vouchers

Are there any risks/disadvantages to helping with this research?

There are no known risks to taking part in this research the only disadvantage to you will be the time it takes to participate which is estimated to be about 45 minutes.

Who has reviewed the study?

All research in the NHS is looked at by independent group of people, called a

Research Ethics Committee, to protect your interests. This study has been reviewed and approved by a research committee at The University of Liverpool.

Who has funded this study?

This study has been funded by the Northwest Strategic Health Authority via the Doctorate of Clinical Psychology Programme, Division of Clinical Psychology, University of Liverpool.

What will happen to the results of the study?

The results of this study will be written up as a thesis which is in partial fulfilment of the principal researcher's qualification of Doctor of Clinical Psychology. In addition, it is hoped that it will be written up as publication in a relevant scientific journal and presented at a conference. However, you will not be identifiable in any publication that is produced.

At the end of your participation the researcher will ask you whether you would like to be sent a summary of the results when the research has been completed. If you would like a copy of the results he will take an address from you.

What if I am unhappy or if there is a problem?

If you are unhappy, or have a problem, please contact Christian O'Dea on (chris1@liv.ac.uk) and he will try his best to answer your questions. If you remain unhappy you can contact Dr Joanne Dickson (Christian O'Dea's research supervisor) via 0151 794 5534 or via email (jdickson@liverpool.ac.uk).

Who can I contact if I have further questions?

Please contact Christian O'Dea via phone (0151 7945534) or email (chris1@liv.ac.uk) if you have any further questions.

Version 2 07/05/13

South Staffordshire and Shropshire Healthcare NHS
NHS Foundation Trust
A Keele University Teaching Trust

UNIVERSITY OF LIVERPOOL

Personal goals and goal processes

PARTICIPANT INFORMATION SHEET

Thank you for taking the time to consider participating in this research project. Before you decide whether you would like to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully.

This information sheet explains the purpose of the study and what will happen if you take part. If there is anything that is not clear or if you would like more information before you make a decision, please ask the researcher.

What is the purpose of the study?

Personal goals are personally meaningful objectives individuals pursue in their daily lives. Goals have been linked to a number of important factors, including wellbeing. The study will seek to further explore how individuals manage their personal goals. The study will be comparing your personal goals with individuals currently experiencing depression. This is based on previous research which suggests a difference in the goal pursuit between depressed and non-depressed individuals.

Why have I been asked to take part?
You have been asked to take part in the study to explore your personal goals and management of these goals. You have also been asked as you are not experiencing mental health difficulties.

Do I have to take part?
No. You can decide not to take part in the study. Your participation is entirely voluntary and you can stop taking part at any point without giving a reason. The results you have given up to the point you decide to withdraw may be used unless you request that they are destroyed.

What would it involve?

If you agree to take part in the study the researcher will arrange a convenient time and place to meet to complete the measures. The researcher will be able to offer home visits or alternatively you could attend the University of Liverpool to complete

the measures with the researcher. The study will involve completing 2 brief timed tasks and 2 short questionnaires. The questionnaires will help identify goals and processes linked to goal management. Participation is expected to take about 45 minutes.

Will my taking part in the study be kept confidential?
Yes. All information you provide will be kept completely confidential. All personal information or anything else which might identify you will be removed so that no-one will know who you are. No names will be used in any reports that are written.

The only exception to confidentiality is if the information that you provide suggests that you or someone else may be at risk of harm. In the extremely rare circumstances when this does happen the researcher will make every effort to discuss this with you first.

If you decide to take part in the free draw (more details below) then your name and contact details will be entered onto a password protected database but this will remain separate from the information you provide.

Are there any benefits to taking part in the research?
As a thank you to you for agreeing to take part you will be given the option to enter into a draw for one of twelve £10 gift vouchers

Are there any risks/disadvantages to helping with this research?
There are no known risks to taking part in this research the only disadvantage to you will be the time it takes to participate which is estimated to be about 45 minutes.

Who has reviewed the study?
All research in the NHS is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study was reviewed by the NRES Committee London – Fulham. Also, this study has been reviewed and approved by a research committee at The University of Liverpool.

Who has funded this study?
This study has been funded by the Northwest Strategic Health Authority via the Doctorate of Clinical Psychology Programme, Division of Clinical Psychology, University of Liverpool.

What will happen to the results of the study?
The results of this study will be written up as a thesis which is in partial fulfilment of the principal researcher's qualification of Doctor of Clinical Psychology. In addition, it is hoped that it will be written up as publication in a relevant scientific journal and presented at a conference. However, you will not be identifiable in any publication that is produced.

At the end of your participation the researcher will ask you whether you would like to be sent a summary of the results when the research has been completed. If you would like a copy of the results he will take an address from you.

What if I am unhappy or if there is a problem?
If you are unhappy, or have a problem, please contact Christian O'Dea on (chris1@liv.ac.uk) and he will try his best to answer your questions. If you remain unhappy you can contact Dr Joanne Dickson (Christian O'Dea's research supervisor) via 0151 794 5534 or via email (jdickson@liverpool.ac.uk).

Who can I contact if I have further questions?
Please contact Christian O'Dea via phone (0151 7945534) or email (chris1@liv.ac.uk) if you have any further questions.

Appendix D

Appendix D

NBRS

Instructions: Most people experience depressive thoughts at times. When depressive thinking is prolonged and repetitive it is called rumination. This questionnaire is concerned about the beliefs that people have about rumination. Listed below are a number of these beliefs. Please read each belief carefully and indicate how much you generally agree with each one. Please circle the number that best describes your answer. Please respond to all of the items.

	Do not agree	Agree slightly	Agree moderately	Agree very much
1. Ruminating makes me physically ill	1	2	3	4
2. When I ruminate I can't do anything else	1	2	3	4
3. Ruminating means I'm out of control	1	2	3	4
4. Everyone would desert me if they knew how much I ruminate about myself	1	2	3	4
5. People will reject me if I ruminate	1	2	3	4
6. Ruminating about my problems is uncontrollable	1	2	3	4
7. Ruminating about my depression could make me kill myself	1	2	3	4
8. Ruminating will turn me into a failure	1	2	3	4
9. I cannot stop myself from ruminating	1	2	3	4
10. Ruminating means I'm a bad person	1	2	3	4
11. It is impossible not to ruminate about the bad things that have happened in the past	1	2	3	4
12. Only weak people ruminate	1	2	3	4
13. Ruminating can make me harm myself	1	2	3	4

PBRS

Instructions: Most people experience depressive thoughts at times. When depressive thinking is prolonged and repetitive it is called rumination. This questionnaire is concerned about the beliefs that people have about rumination. Listed below are a number of these beliefs. Please read each belief carefully and indicate how much you generally agree with each one. Please circle the number that best describes your answer. Please respond to all of the items.

	Do not agree	Agree slightly	Agree moderately	Agree very much
1. In order to understand my feelings of depression I need to ruminate about my problems	1	2	3	4
2. I need to ruminate about the bad things that have happened in the past to make sense of them	1	2	3	4
3. I need to ruminate about my problems to find the causes of my depression	1	2	3	4
4. Ruminating about my problems helps me to focus on the most important things	1	2	3	4
5. Ruminating about the past helps me to prevent future mistakes and failures	1	2	3	4
6. I need to ruminate about my problems to find answers to my depression	1	2	3	4
7. Ruminating about my feelings helps me to recognise the triggers for my depression	1	2	3	4
8. Ruminating about my depression helps me to understand past mistakes and failures	1	2	3	4
9. Ruminating about the past helps me to work out how things could have been done better	1	2	3	4

GAS

Instructions- During their lives people cannot always attain what they want and are sometimes forced to stop pursuing the goals they have set. We are interested in understanding how you usually react when this happens to you. Please indicate to which you agree or disagree with each of the following statements, as it applies to you

If I have to stop pursuing an important goal in my life	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. It's easy for me to reduce my effort towards the goal	1	2	3	4	5
2. I convince myself that I have other meaningful goals to pursue	1	2	3	4	5
3. I stay committed to the goal for a long time; I can't let it go	1	2	3	4	5
4. I start working on other new goals	1	2	3	4	5
5. I think about other new goals to pursue	1	2	3	4	5
6. I find it difficult to stop trying to achieve the goal	1	2	3	4	5
7. I seek other meaningful goals	1	2	3	4	5

8. It's easy for me to stop thinking about the goal and let it go	1	2	3	4	5
9. I tell myself that I have a number of other new goals to draw upon	1	2	3	4	5
10. I put effort toward other meaningful goals	1	2	3	4	5

PHQ-9

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3.Trouble falling/staying asleep, sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5.Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down.	0	1	2	3
7.Trouble concentrating on things, such as reading the newspaper or watching television.	0	1	2	3
8.Moving or speaking so slowly that other people could have noticed. Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual.	0	1	2	3
9.Thoughts that you would be better off dead or of hurting yourself in some way.	0	1	2	3

Appendix E

Appendix E

Instructions for Authors

Motivation and Emotion

Motivation and Emotion publishes articles that focus on motivational and emotional phenomenon. The journal seeks to publish articles that make a theoretical advance by linking empirical findings to underlying processes. Submissions to the journal should speak to an important problem in motivation and emotion study, and they should offer theory-based directional hypotheses.

Published articles are almost always explanatory rather than merely descriptive, as they provide the data necessary to understand the origins of motivation and emotion, to explicate why, how, and under what conditions motivational and emotional states change, and to document that motivational and emotional processes are important to human functioning. Essentially, articles that are excellent candidates for the pages of Motivation and Emotion are those that use and develop theory to explain the field's core concepts—human needs, cognitive and neural states capable of energizing and directing action, emotion, affect, and mood. Submissions in which motivational or emotional states are only incidental are not good candidates for publication.

A range of methodological approaches are welcomed, but methodological rigor generally speaking is the key criterion.

The focus should be on human motivation and emotion. Any submission that utilizes non-human participants should be able to contribute to understanding human motivation and emotion.

Blind Review Policy

Motivation and Emotion relies on a masked review policy, which means that the identities of the authors are unknown ("blinded") to the reviewers and also that the identities of the reviewers are unknown to the authors. To conform to this policy, the authors' names and affiliations should not appear on the title page and self-referenced work, such as "in our earlier study, Smith and colleagues (2012)…", should not appear in the text of the manuscript.

Manuscript Style

Submissions are to be formatted according to APA style, as detailed in:

APA (2010). Publication manual of the American Psychological Association, 6th edition. American Psychological Association: Washington, DC.

Submissions should be structured as follows:

A Title Page lists the title of the manuscript but omits the authors' names, affiliations, and author notes.

An Abstract of 120 to 160 words offers information about the purpose of the paper, the sample and procedures, key results, and a clear statement of the implications of the findings. Below the Abstract, supply 4 or 5 keywords or brief phrases.

An Introduction introduces the research problem and explains why it is important. It describes relevant theory and past research, and provides testable, directional hypotheses.

A Method appears in subsections. A Participants section identifies the research participants and their demographic characteristics. A Procedures or Research Design section provides the timeline of events within the conduct of the study and states the experimental conditions or data analysis plan. A Measures section provides the measures used in the collection of the data and offers evidence of the psychometric properties of those measures.

The Results reports the analyses performed and the result of the statistic tests, especially those related to the hypotheses. Generally speaking, descriptive statistics are provided in tables or figures whereas the report of the statistical tests appears in the text.

The Discussion evaluates and interprets the findings and states their implications. The section should not simply reiterate the findings. Instead, it interprets the findings, integrates them into both theory and the existing empirical literature, offers suggestions for future research, acknowledges the limitations of the research, and addresses alternative interpretations.

A Conclusion section is optional. If provided, it should be a brief (usually a single paragraph) section that explicitly states the contribution of the study and it move the research literature significantly forward.

Many papers will feature multiple experiments. For these submissions, the arrangement of sections reflects the above structure but includes additional headings such as “Study 1”, “Study 2”, and “Study 3”. Each study is to include its own Introduction, Method, Results, and Discussion sections.

For References, Footnotes, Tables, and Figures, follow the guidelines of the APA Publication manual. An Appendix may be an appropriate final section to provide stimulus materials or the items within a newly-developed questionnaire.